LOAN DOCUMENT

PHOTOGRAPH THIS SHEET

DTIC ACCESSION NUMBER

LEVEL

INVENTORY D

EPA-600/R-98-016b
Feb 98

DOCUMENT IDENTIFICATION

DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited

DISTRIBUTION STATEMENT

HANDLE WITH CARE

ACCESSION FOR
NTIS GRA&I ☑
DTIC TRAC ☐
UNANNOUNCED ☐
JUSTIFICATION

BY

DISTRIBUTION/

AVAILABILITY CODES

DISTRIBUTION	AVAILABILITY AND/OR SPECIAL	
A-1		

DISTRIBUTION STAMP

DATE ACCESSIONED

DATE RETURNED

19990609 030

DATE RECEIVED IN DTIC

REGISTERED OR CERTIFIED NUMBER

PHOTOGRAPH THIS SHEET AND RETURN TO DTIC-FDAC

DTIC FORM 70A JUN 90

DOCUMENT PROCESSING SHEET

PREVIOUS EDITIONS MAY BE USED UNTIL STOCK IS EXHAUSTED.

LOAN DOCUMENT

United States
Environmental Protection
Agency

EPA-600/R-98-016b

February 1998

EPA

Research and Development

DEMONSTRATION OF A
PAINT SPRAY BOOTH
EMISSION CONTROL STRATEGY
USING RECIRCULATION/PARTITIONING AND
UV/OZONE POLLUTANT EMISSION CONTROL
Volume 2. Appendices A-E

Prepared for

Strategic Environmental Research and
Development Program

Prepared by

National Risk Management
Research Laboratory
Research Triangle Park, NC 27711

FOREWORD

The U.S. Environmental Protection Agency is charged by Congress with protecting the Nation's land, air, and water resources. Under a mandate of national environmental laws, the Agency strives to formulate and implement actions leading to a compatible balance between human activities and the ability of natural systems to support and nurture life. To meet this mandate, EPA's research program is providing data and technical support for solving environmental problems today and building a science knowledge base necessary to manage our ecological resources wisely, understand how pollutants affect our health, and prevent or reduce environmental risks in the future.

The National Risk Management Research Laboratory is the Agency's center for investigation of technological and management approaches for reducing risks from threats to human health and the environment. The focus of the Laboratory's research program is on methods for the prevention and control of pollution to air, land, water, and subsurface resources; protection of water quality in public water systems; remediation of contaminated sites and groundwater; and prevention and control of indoor air pollution. The goal of this research effort is to catalyze development and implementation of innovative, cost-effective environmental technologies; develop scientific and engineering information needed by EPA to support regulatory and policy decisions; and provide technical support and information transfer to ensure effective implementation of environmental regulations and strategies.

This publication has been produced as part of the Laboratory's strategic long-term research plan. It is published and made available by EPA's Office of Research and Development to assist the user community and to link researchers with their clients.

E. Timothy Oppelt, Director
National Risk Management Research Laboratory

EPA REVIEW NOTICE

EPA-600/R-98-016b
February 1998

DEMONSTRATION OF A PAINT SPRAY BOOTH EMISSION CONTROL STRATEGY USING RECIRCULATION/PARTITIONING AND UV/OZONE POLLUTANT EMISSION CONTROL

Volume 2. Appendices A - E

By

Jacqueline Ayer
Air Quality Specialists
2280 University Drive
Newport Beach, CA 92660

David Proffitt
Acurex Environmental Corporation
4915 Prospectus Drive, Suite F
Durham, NC 27713

EPA Contract No. 68-D4-0111

EPA Project Officer: Charles H. Darvin
Air Pollution Prevention and Control Division
National Risk Management Research Laboratory
Research Triangle Park, NC 27711

This Study Was Conducted in Cooperation with the United States Marine Corps:
Maintenance Directorate
Marine Corps Logistics Base
Albany, GA 31704

Marine Corps Multi-Commodity Maintenance Center
Barstow Marine Corps Logistics Base
Barstow, CA 92311

Prepared for:
U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Research and Development
Washington, D.C. 20460

PREFACE

This report was prepared for the U.S. Environmental Protection Agency (EPA) Air Pollution Prevention and Control Division by Air Quality Specialists, 2280 University Drive, Newport Beach, CA 92660. Air Quality Specialists developed this document under EPA Contract 68-D4-0111 with Acurex Environmental Corporation, 555 Clyde Avenue, Mountain View, CA, 94039.

This report describes in detail the source testing, construction, and data reduction/analysis activities that comprise the three phases of the Technology Demonstration Program. Phase I consisted of a detailed baseline evaluation of several paint spray booths operated at the Barstow Marine Corps Logistics Base to establish key operating parameters and air toxic emission profiles. This information was used to design a safe recirculation/flow partitioning system for the paint booths involved in the study to efficiently reduce the overall exhaust flow rate. Under Phase II, the necessary booth construction and retrofit modifications were made, and the air pollution control device was installed. Extensive testing of the recirculation/flow partitioning system was performed as part of the Phase III effort to ensure that the booths operated in accordance with Health and Safety Standards mandated by the Occupational Safety and Health Administration (OSHA) and the National Fire Protection Association (NFPA).

Numerous agencies were involved in this Program, which was executed via cooperative agreement between the U.S. Marine Corps Maintenance Directorate and the EPA's Air Pollution Prevention and Control Division (APPCD).

CONTENTS

LIST OF TABLES

APPENDIX A

BASELINE AND TECHNOLOGY DEMONSTRATION STUDY SAMPLING PROCEDURES

This Appendix discusses the sampling, air flow measurement, and sample custody procedures employed in both the Baseline Study completed in the fall of 1993 and the Technology Demonstration Study performed in December, 1995. Both integrated and instantaneous sampling procedures were employed during these test series to determine constituent concentrations at the various sampling locations. In addition, two different flow rate measurement procedures were employed to provide a means of determining flow rate measurement accuracy. Coating usage rate data and bulk samples were also collected throughout the two test series.

In general, virtually identical sampling procedures were used in both test series. However, two supplemental procedures (hexavalent chrome and phosphoric acid sampling methods) were employed in the technology demonstration study that were not used in the Baseline Study. In addition, the Baseline Study included particulate sampling events which were not employed during the Technology Demonstration study. Details relating to the various sampling procedures that were employed are provided in the following sections.

A.1 INTEGRATED SAMPLING PROCEDURES

A.1.1 Metal Sampling

Total chrome and zinc metal concentrations at the booth exhaust faces were determined according to NIOSH Method 7300 procedures. This method requires that the sample stream pass through a cellulose-ester filter at a constant flow rate for a specified period of time. The filter is held stationary and leak tight by an open-faced, three-part cassette. The filters are loaded into the cassettes prior to shipping, and are not removed until they are analyzed. For each test event, the NIOSH 7300 sample location, flow rate, and sample interval data were recorded with the booth temperature and barometric pressure on data sheets developed specifically for this application. To ensure accurate results, the small personal sampling pumps were calibrated before and after each sampling event.

Total chromium and zinc metal concentrations were measured in the Booth 1 exhaust ducts during the Baseline Study and in the Booth 1 recirculation ducts in the Technology Demonstration Study in accordance with EPA Method 0060. [Please note that when the Baseline Study was performed, EPA Method 0060 was still in draft form, and was referred to as EPA Method 29. Despite the name change, the same sampling procedures were employed for both test series, and is referred to herein as EPA Method 0060. This isokinetic sampling procedure specifies that a representative sample be collected using a duct traverse method. The solid phase metals present in the sample stream are collected on a quartz fiber filter and the gaseous phase or aerosol metals are collected in nitric acid impingers placed downstream of the filter. EPA Method 0060 field data were recorded on standard isokinetic field sampling sheets.

For the Technology Demonstration Study, hexavalent and total chromium concentrations in the Booth 2 and 3 recirculation ducts were determined according to EPA Method 0061 sampling procedures. This method was used for these tests because of the significant impact potential of hexavalent chromium on the OSHA Factors calculated for the Booth 2 and 3 recirculation streams. EPA Method 0061 is an isokinetic sampling procedure in which the two forms of chromium are collected in Teflon™ impingers containing potassium hydroxide. The sample train is configured with a continuous impinger reagent recirculation system to eliminate reduction of the hexavalent chromium to the trivalent form in the sample probe. After sampling is complete, the sample train is purged, and the impinger contents are immediately filtered to separate the soluble hexavalent chromium from the other, insoluble forms of chromium. EPA Method 0061 is capable of achieving low detection levels and sample representativeness (via the isokinetic sampling and duct traverse procedures) and was therefore selected for this application. The Method 0061 field data were recorded on standard isokinetic sampling field data sheets.

A.1.2 Organic Compound Sampling

The organic compounds present in the booth and in the ventilation ducts were speciated and quantified in general accordance with NIOSH 1300 procedures. This sampling method specifies that the sample stream pass through a charcoal tube at a constant flow rate for a known sampling time. There is no sample hold-time specified in the method; however all charcoal tubes were extracted within 21 days of receipt by the laboratory and until extraction the tubes were maintained at 4°C.

For the Baseline Study and Technology Demonstration Study series, the NIOSH 1300 were slightly adapted to the accommodate the paint booth source test application. These modifications were necessary to permit sampling for the duration of an entire paint cycle (approximately 1 to 1 1/2 hours) at higher sample flow rates (which increase the accuracy of the sample volume data) while ensuring that sample breakthrough did not occur. The standard NIOSH 1300 procedure specifies the use of a 100/50 charcoal tube (containing 100 mg charcoal in the front section and 50 mg charcoal in the back section); however for this test series, larger 400/200 charcoal tubes were used instead. The larger tubes have been used successfully in similar applications. In addition, a sample flow rate of 1 l/min was used rather than the 0.2 l/min specified by the method. For each test event, the NIOSH 1300 sample location, flow rate, and sample interval data were recorded with the booth temperature and barometric pressure on data sheets developed specifically for this application. To ensure accurate results, the small personal sample pumps were calibrated before and after each sampling event. At each NIOSH 1300 sampling location, two charcoal tubes were placed in series. The second tube collects any solvent vapors that "break through" the first tube. The front and back halves of the first charcoal tube were extracted and analyzed separately; the back half results were used to determine if breakthrough occurred during sampling. If breakthrough was detected, the second tube collected at that particular sampling location was extracted and analyzed.

A.1.3 Isocyanate Sampling

Three different sampling procedures were employed in the MCLB paint booth test series to measure concentrations of hexamethylene diisocyanate (HDI) at various locations. Two procedures (OSHA 42 and NIOSH 5521) employ small personal sampling pumps; the third is an

isokinetic sampling procedure recently developed by the EPA. The latter method was used only in the Technology Demonstration Study because it had not been demonstrated or validated prior to the Baseline Study. Each of these procedures are discussed separately below.

OSHA Method 42 requires that the sample stream pass through a treated glass fiber filter at a constant flow rate for a specified period of time. The filter is held stationary and leak tight by an open-faced, three-part cassette. For each test event, the OSHA 42 sample location, flow rate, and sample interval data were recorded with the booth temperature and barometric pressure on data sheets developed specifically for this application. To ensure accurate results, the small personal sample pumps were calibrated before and after each sampling event. The OSHA 42 sampling procedure was employed for all exhaust face samples collected the Baseline Study, and in the painter vicinity for both the Baseline and the Technology Demonstration Studies.

NIOSH 5521 specifies that a constant flow sample stream pass through an impinger containing 1-(2-methoxyphenyl)piperazine in toluene for a known amount of time. After sampling, the impinger solution was recovered in sealed vials and submitted for analysis. For each test event, the NIOSH 5521 sample location, flow rate, and sample interval data were recorded with the booth temperature and barometric pressure on data sheets developed specifically for this application. To ensure accurate results, the small personal sample pumps were calibrated before and after each sampling event.

The EPA Draft Isocyanate Method was first released in August, 1995; it involves an isokinetic sampling procedure that is, in some ways, similar to EPA Method 5. For this procedure, sample impingers containing a solution of 1-(2-pyridyl)-piperazine in toluene are used to capture and derivitize the isocyanate species. After sampling, the impinger solutions are recovered in sealed vials, and submitted for analysis. A standard isokinetic sampling data sheet similar to that employed for Methods 0060 and 0061 were used for this procedure. This method has been effective in determining concentrations of toluene diisocyanate (TDI) and methylene-diphenyl isocyanate (MDI); work is ongoing to demonstrate applicability of this method to HDI.

According to NIOSH technical experts, NIOSH 5521 is the preferred sampling method for determining isocyanate concentrations in paint booth environments. However, it was not logistically possible to employ this impinger sampling procedure to measure isocyanates across the exhaust faces, thus NIOSH 5521 was used only during the Baseline Study to measure exhaust duct and painter vicinity concentrations. It was also not used in the Technology Demonstration Study; the general consensus was that the isokinetic EPA Draft Isocyanate method would yield more accurate and representative results.

A.1.4 Phosphoric Acid Sampling

Phosphoric acid concentrations were measured in the painter vicinity and in the Booth 2 and 3 recirculation ducts during the Technology Demonstration Study in accordance with NIOSH Method 7903 procedures. NIOSH 7903 specifies that a known sample volume pass through 400/200 sample tubes containing washed silica gel to collect the airborne phosphoric acid that is present in the sample stream. For this test series, a 0.5 l/min sample flow rate was used, and a 20 l minimum sample volume was collected. For each test event, the NIOSH 7903 sample location, flow rate, and sample interval data were recorded with the booth temperature and barometric pressure on data sheets developed specifically for this application. To ensure accurate results, the small personal sample pumps were calibrated before and after each sampling event.

A.1.5 Particulate Sampling

For the Baseline Study, particulate concentrations were measured at the exhaust face and in the exhaust ducts in accordance with NIOSH 500 and EPA Method 5 sampling procedures, respectively. NIOSH Method 500 requires that the sample stream pass though a polyvinyl chloride (PVC) filter at a constant flow rate for a specified period of time. The PVC filter is held stationary and leak tight by an open-faced, three-part cassette. Prior to sampling, the filters are tared and loaded into the cassettes. After sampling, the filters were removed from the cassettes and weighed; the quantity of particulate collected was determined by difference. For each test event, the NIOSH 500 sample location, flow rate, and sample interval data were recorded with the booth temperature and barometric pressure on data sheets developed specifically for this application. To ensure accurate results, the small personal sample pumps were calibrated before and after each sampling event.

Particulate concentrations in the Booth 1 exhaust ducts were determined during the Baseline Study in accordance with EPA Method 5. This isokinetic sampling procedure specifies that a representative particulate sample be collected using a duct traverse method. The particulate present in the sample stream was collected on a glass-fiber filter, which was weighed before and after sampling. The quantity of particulate collected was determined by difference.

EPA Method 5 requires the collection of a 30 dry standard cubic feet sample volume; this was accomplished over the duration of a complete paint cycle that typically occurred over a 1 hour period. However, there were occasions when paint cycles concluded in less than an hour. Under these circumstances, it was necessary to discontinue Method 5 sampling after a painting cycle was completed, and recommence sampling (using the same sample train) when a new painting cycle was initiated. In this way, a valid Method 5 sample was collected.

A.2 CONTINUOUS MONITORING

The Baseline Study exhaust duct VOC concentrations and Technology Demonstration Study recirculation duct organic VOC concentrations were measured according to EPA Method 25A procedures, and the output recorded on both strip-chart recorders and digital data-logging devices. Method 25A requires the use of a flame ionization detector (FID) to continuously measure the organic concentrations in units of parts per million (ppm) as organic carbon. The FID instruments were calibrated before and after each test event to assess measurement precision, bias, drift, and accuracy.

A.3 AIR FLOW RATE MEASUREMENTS

A.3.1 ACGIH Anemometer

The ACGIH air flow rate procedure used to determine the exhaust face flow rates employ a hot wire anemometer to measure the face velocity. Each exhaust face was divided into zones, the boundaries of which were indicated with wall marks or other indicators. For each booth, the average velocity measured over each exhaust face zone was recorded on a data sheet developed specifically for that particular booth. These data were later reconciled with exhaust face area measurement data to determine the corresponding volumetric flow rate. For each measurement, booth temperature and barometric pressure data were recorded and later used to standardize the flow rate data to 68 °F and 29.92 in. Hg.

A.3.2 EPA Method 2

EPA Method 2 was used to measure flow rates Booth 1 during the Baseline Study and in all the booth ventilation ducts for the Technology Demonstration Study. EPA Method 2 specifies the use of either a standard or S-type pitot tube to traverse the duct; because the particulate loading at each test location was quite low, a standard pitot tube was used. The location of the duct traverse points were determined from the duct diameter per the method, and data were recorded on standardized EPA Method 2 data sheets.

A.4 BULK PAINT SAMPLING AND USAGE RATE MONITORING

Paint samples were collected for density and percent volatile measurements in 40 ml. VOA vials with a small amount of headspace. One and two part paints are used at the USMC Logistics Base, thus a sample of each paint component was collected from the container after it was thoroughly stirred (via agitation) by the paint booth operator. Grab samples were collected using uncoated paper cups, and refrigerated immediately after sampling. Only paints selected for application by the booth operators were sampled.

Paint usage rates were monitored by a sample crew member present in the booth during painting. The total usage over the paint cycle was determined by either weighing the paint in the spray system before and after use, or measuring the paint volume used, and calculating the usage via displaced volume techniques. There were usually two painters present, thus usage rates for each painter were recorded separately. Coating usage data for each painting cycle were recorded on data sheets developed specifically for this application.

A.5 SAMPLE TRACEABILITY

The paint, isocyanate, metals, phosphoric acid, and organic samples were recovered on-site by the individual sampling team member responsible for their collection. Any deviations from the sample collection and recovery procedures specified in the methods were noted on the sample collection data sheets. Following recovery, the samples were labeled by the sample team member using a two-part label. One portion of the label was affixed to the sample container, and the other portion was placed on the sample collection data sheet. Field blanks were similarly handled. After the samples were recovered, labeled, and packaged, the responsible crew member passed the data sheets and packaged samples to the Sample Custodian. The EPA Method 25A stripcharts and computer disk records were likewise passed to the Sample Custodian.

The Sample Custodian placed the field data sheets and stripcharts in a central notebook, which was maintained solely by the Sample Custodian. For samples requiring immediate shipment to a laboratory, the Sample Custodian completed a chain-of-custody (COC) form which was sent with the samples to the laboratory. The COC is typically used to maintain sample traceability, and each sample number recorded thereupon is unique. If the samples were not shipped immediately, they were stored in clean, dry containers in accordance with requirements specified by the particular sampling method. At each transfer point, sample integrity and packaging were checked, and the completeness of the accompanying paperwork evaluated.

APPENDIX B

BASELINE AND TECHNOLOGY DEMONSTRATION STUDY ANALYTICAL PROCEDURES

This Appendix discusses the analytical procedures employed in both the Baseline Study completed in the Fall of 1993 and the Technology Demonstration Study performed in December, 1995. Both integrated and instantaneous sampling procedures were employed during these test series to determine constituent concentrations at the various sampling locations. Bulk coating samples were also analyzed throughout the two test series.

In general, virtually identical analytical procedures were used in both test series. However, two supplemental procedures were used during the Technology Demonstration Study for analyzing the hexavalent chrome and phosphoric acid samples which were not used in the Baseline Study. Details related to the various sampling procedures that were employed are provided in the following sections.

B.1 METALS ANALYSIS PROCEDURES

The samples generated from the NIOSH 7300 and EPA Method 0060 sampling events were acid digested and analyzed for total chromium using inductively coupled argon plasma of graphite furnace absorption techniques. The results were reported in units of total μg per train; these results were reconciled with the field sampling data to determine the actual concentrations present in the sample volume.

The EPA Method 0061 impinger solutions were recovered and filtered with a 0.45 μm acetate filter to remove the insoluble matter and chrome compounds that are present in the non-hexavalent form. The filtrate is subsequently analyzed for hexavalent chromium using an ion chromatograph equipped with a post column reactor and a visible wavelength detector. To achieve the lowest possible detection limit, a pre-concentration system was used in conjunction with the ion chromatograph. The results are reported in units of total μg per train; these results were reconciled with the field sampling data to determine the actual concentrations present in the sample volume.

B.2 ORGANIC ANALYSIS PROCEDURES

The NIOSH 1300 tubes were analyzed in general accordance with the method, which specifies that the samples be extracted with carbon disulfide (CS_2) to remove the organics from the activated charcoal present in the sample tubes. However, experience shows that CS_2 does not successfully extract the mixture of organics present in coatings used at MCLB. Therefore, and appropriate extraction solvent mixture developed specifically for this application was used

for the EPA/Marine Corp Technology Demonstration Program. The improved solvent mixture, comprised of 5% acetone in CS_2, has proven very successful in extracting the various solvents typically found in military coatings.

Following extraction, the extracts were analyzed as specified in the method with a gas chromatograph/flame ionization detector (GC/FID). The results for each compound were reported in units of μg per tube; these results were reconciled with the field sampling data to determine the actual concentrations present in the sample volume. The target analytes, selected base on coating manufacturer data and previous experience, include:

Methyl ethyl ketone	Ethyl acetate*	n-Butanol	Methyl isobutyl ketone*
Toluene	Butyl acetate	Ethyl benzene	Methyl isoamyl ketone
Xylenes (total)	Trimethylbenzenes*	Hexyl acetate	Benzyl alcohol*

Propylene glycol monomethyl ether acetate

* Those compounds identified with an asterisk were not target analytes for the Baseline Study.

The quantification of target analytes was based on the average response factor obtained from a minimum three point instrument calibration curve. For the initial calculation, all target analytes demonstrated a relative standard deviation of less than 20 percent. Continuing calibrations were performed on a daily basis to check the validity of the initial calibration; the field sample analyses were only performed if the checks were under 20%.

To assess method extraction efficiency, spike and recovery analyses will be performed using all the target analytes at each of three spiking levels within the calibration range. Five replicate spike and recovery analyses were performed at each spiking level using clean charcoal tubes.

B.3 ISOCYANATE ANALYSIS PROCEDURES

The OSHA 42 samples were extracted with 90/10 acetonitrile/dimethyl sulfoxide (ACN/DMSO). The extracts were then analyzed using a high pressure liquid chromatograph (HPLC) equipped with an ultra-violet (UV) detector. The results were reported in units of total μg per filter; these results were reconciled with the field sampling data to determine the actual concentrations present in the sample volume.

In accordance with the NIOSH 5521 analytical procedures, acetic anhydride was added to each impinger solution to acetylate the excess 1-(2-methoxyphenyl) piperazine. The impinger solution was then evaporated to dryness, and the residue redissolved in 5 ml. of methanol. An aliquot of the prepared sample solution was then injected into an HPLC/UV instrument to determine the HDI concentration. The results were reported in units of total μg per impinger; these results were reconciled with the field sampling data to determine the actual concentrations present in the sample volume.

The EPA Draft Isocyanate Method train impinger solutions were analyzed for HDI using HPLC/UV procedures. The contents of the first and second impingers were analyzed separately to assess breakthrough. The method states that, prior to analysis, acetonitrile should be added to the impinger solutions, which are then evaporated to dryness and then redissolved with acetonitrile. However, this procedure was modified slightly in analyzing the MCLB samples; instead of adding acetonitrile then evaporating the sample, the solution was merely concentrated prior to analysis (the decision to modify the analytical procedure was made in the field with the concurrence from the EPA QAO representative). The results were reported in units of total μg per train; these results were reconciled with the field sampling data to determine the actual concentrations present in the sample volume.

B.4 PHOSPHORIC ACID ANALYSIS PROCEDURES

Each NIOSH 7903 silica gel tube was extracted with $NaHCO_3/Na_2CO_3$, and the extract analyzed via ion chromatography. Method extraction efficiencies were established via 5 replicate spike and recovery analyses at each of 3 spiking levels within the calibration range. The results were reported in units of total μg per tube; these results were reconciled with the field sampling data to determine the actual concentrations present in the sample volume.

B.5 PAINT SAMPLE ANALYSIS

The paint samples that were collected were analyzed to determine the percent volatile component and the coating density. Each of these procedures are described separately below.

B.5.1 Percent Volatile Analysis

The percent volatile content of the paints were determined using a weight loss on drying procedure. For this procedure, samples were placed in tared aluminum dishes and weighed on a top-loading balance. The dishes were subsequently placed in a heated (50 °C) oven for up to 24 hours. For multi-component coatings, the components were combined in the appropriate volume ratios and mixed in a tared aluminum dish prior to weighing. Throughout the drying period, the samples were weighed periodically until a constant weight was achieved. The percent by weight volatile content was determined according to the following equation:

$$\% \ Volatile = 100 \times \frac{W_{initial} - W_{final}}{W_{initial}}$$

B.5.2 Density

Paint density was determined by weighing a known volume of paint in a tared container on a top loading balance. The paint components dry very quickly, and can be very viscous; therefore, paint components were weighed in transparent, closed containers. For this procedure, the volume of paint in each container was determined by filling a similar tared container with an

equivalent amount of de-ionized water. The volume of water was then measured, and the results confirmed by weighing the container of de-ionized water (the density of water is approximately 1 g/ml). This method has been used successfully in the past, resulting in <5 percent difference between measured and published density values.

APPENDIX C

DETAILS OF BASELINE CHARACTERIZATION STUDY RESULTS

This appendix includes additional discussion and supporting data pertaining to the Baseline Characterization Study results presented in Section 4. A general description of the procedures employed to determine exhaust plenum partition heights as well as generally significant findings are summarized below. The appendix is organized such that each subsection summarizes results obtained from specific measurement activities; supporting field and analytical data are provided in tabular form at the end of this appendix. The supporting data sheets are labeled in the upper right hand corner with the Appendix section to which they correspond.

C.1 AIR FLOW RATE MEASUREMENTS

Several flow rate measurements were performed in Booth 1 and Booth 2. Constituent concentration measurement results were paired with flow rate measurements taken concurrently to calculate constituent mass generation rates.

Clean exhaust face particulate filters were installed in Booth 1 and Booth 2 at the beginning of the Baseline Study test series, and it was noted that booth flow rates decreased as the filters became loaded with paint overspray particulate. Booth 1 flow rates measured in the exhaust stacks ranged from 1,722 to 1,368 m^3/min (60,800 to 48,300 scfm). Cyclonic flow conditions were found in the Booth 1 exhaust ducts, however cyclonic corrections resulted in a variation of less than ten percent. Moreover, by not correcting for cyclonic flow conditions, the Booth 1 partition height calculation yielded more conservative results, thus the flow rate data reported in this appendix and Section 4 were not corrected for cyclonic flow. To confirm the Booth 1 flow rate data accuracy, the measured results were compared to exhaust fan manufacturer efficiency curves; the measured results agreed with the fan data within 13 percent.

Booth 2 flow rate measurements taken in the exhaust stacks ranged from 1,923 to 1,436 m^3/min (67,900 to 50,700 scfm). Measurements were taken with an anemometer at the exhaust stack exits because the stacks were not suitable for EPA Method 1-4 measurements.

C.2 SPECIATED ORGANIC CONCENTRATION MEASUREMENT RESULTS

Speciated organics concentrations were measured in the Booth 1 and Booth 2 exhaust ducts during each painting cycle in accordance with NIOSH 1300. The results of these tests were used to determine constituent mass generation rates in each booth for use in the split-flow/recirculation calculations. These data were reconciled with peak continuous emissions monitoring data to ensure that, under peak (instantaneous) concentrations, the selected split-

height yields sufficiently low intake concentrations. The highest concentrations measured in the exhaust stacks were utilized in split-height calculations. Exhaust duct speciated organic test results which coincided with Booth 1 Metals 1 and Metals 3 test runs were not used as calculation inputs because they were performed during primer application.

Reduced exhaust duct speciated organics measurement results are presented in the attached spreadsheets. The first column indicates the test number and exhaust duct (i.e. P1/N represents Particulate Test 1 north duct).

In-booth NIOSH 1300 results follow the exhaust duct data. For each booth, sampling grid row averages are presented for each constituent; these values were used to quantify the mass of each constituent exiting the booths over the split-heights. NIOSH 1300 calculation spreadsheets for each test follow; these include all reduced field data, analytical data, and calculated results. Grid diagrams presenting exhaust grid concentration profiles are included. All Booth 1 data precedes Area 11 data.

C.3 TOTAL ORGANIC CONCENTRATION MEASUREMENT RESULTS

Total organic concentrations were measured continuously in the Booth 1 and Booth 2 exhaust ducts according to EPA Method 25A. These results were combined with paint usage data to perform mass balance calculations, and were utilized to determine peak instantaneous concentrations. Test results were recorded on strip-charts and by a data-logger system. Test averages corrected for analyzer drift and linearity are tabulated in the attached spreadsheets.

C.4 VOC MASS BALANCE

A VOC mass balance was performed for each test event in the Baseline Study test series; the mass balance results provided a means of assessing the quality and validity of organic and flow rate measurement data. Mass balance calculations were performed by reconciling the total quantity of solvent released in the booth by the painting operations with the quantity of solvent measured in the exhaust ducts via EPA Method 25A. The steps involved in performing a mass balance are:

1) The results from the paint percent volatile analyses were combined with the paint usage rate data to yield the quantity of solvent released into the booth during the paint cycle.

2) The EPA Method 25A measurement results were reduced and correlated with the NIOSH 1300 speciation results to calculate the quantity of solvent measured in the ventilation ducts. This was accomplished by calculating the contribution of each constituent to the total carbon measured in the stack. Total solvent mass was then calculated from the Method 25A concentration data, stack flow rate measurements, and test duration.

3) Agreement between the quantities derived from steps 1 and 2 was determined to assess the degree of closure achieved. The following equation defines how percent closure is calculated:

$$\% \ Closure = \frac{Mass_{in}}{Mass_{out}} * 10$$

The degree of closure achieved for each test ranged from 65 to 120 percent, confirming the validity of the sample procedures employed.

C.5 METALS CONCENTRATION MEASUREMENT RESULTS

Total chromium and zinc concentrations were measured in Booth 1 at the exhaust faces and the painter vicinity; only total chromium was measured at similar locations in Booth 2. Significant pollutant stratification exists across the exhaust face horizontally as well as vertically in Booth 2. This is because primer and topcoat are both sprayed simultaneously in Booth 2. Based on observations made during painting operations, it is known that primer spraying actually occurs across less than half of the filter face. This issue is significant because there are two types of chromium present in the materials used in Booth 2; the wash primer contains hexavalent chromium and the topcoat contains trivalent chromium. These two forms of chromium have significantly different TWAs. It was found that total chromium concentrations were somewhat higher on the topcoat side of the booth, and less than one half of the exhaust face was exposed to primer overspray. Therefore, less than one half of the total chromium measured in Booth 2 is in the hexavalent form.

Total chromium and zinc concentrations were measured in the Booth 1 exhaust ducts during topcoat and primer painting cycles to determine the mass emission rates during both processes. Only topcoat test measurement results were considered because no primer will be used in Booth 1 with split-flow/recirculation. Split-height calculations were performed using chromium and zinc concentrations measured during topcoat application assuming only trivalent chromium is present.

Booth 1 data is presented prior to Area 11 data. NIOSH 7300 sampling grid row averages are presented for chromium and zinc in Booth 1, and chromium in Area 11. NIOSH 7300 calculation spreadsheets for each test follow; these include all reduced field data, analytical data, and calculated results. Grid diagrams presenting exhaust grid concentration profiles are included. EPA Method 0060 isokinetic spreadsheets containing chromium and zinc exhaust duct concentration measurement results are included for Booth 1.

C.6 ISOCYANATE CONCENTRATION MEASUREMENT RESULTS

HDI concentrations were measured at the exhaust faces, painter vicinity, and exhaust ducts of Booth 1. OSHA 42 was used for the in-booth samples; NIOSH 5521 was used at the exhaust ducts. A sampling grid row average spreadsheet is included. Calculation spreadsheets for each test follow; these include all reduced field data, analytical data, and calculated results. Grid diagrams presenting exhaust grid concentration profiles are included.

C.7 PARTICULATE CONCENTRATION MEASUREMENT RESULTS

Booth 1 data is presented prior to Area 11 data. NIOSH 500 sampling grid row averages are presented for Booth 1 and Area 11. NIOSH 500 calculation spreadsheets for each test follow; these include all reduced field data, analytical data, and calculated results. Grid diagrams presenting exhaust grid concentration profiles are included. EPA Method 5 isokinetic spreadsheets containing particulate exhaust duct concentration measurement results are included for Booth 1. Booth 1 stack results were used to determine booth exhaust flow rates; Booth 2 exhaust face profiles were used to define isocyanate exhaust face profiles for split-height calculations.

C.8 SPLIT-FLOW/RECIRCULATION CALCULATIONS

Example split-height calculation spreadsheets are provided for each booth. Calculations were performed to determine the OSHA Ratio at various sampling levels; the final split-height was established by interpolating to obtain the desired OSHA ratio. The spreadsheets were developed to calculate the desired partition height using the equation presented and defined in Section 2 of the report.

C.9 BASELINE CHARACTERIZATION STUDY QA/QC RESULTS SUMMARY

A number of quality assurance/quality control (QA/QC) procedures were implemented to assess the quality of the data reported herein. The data quality indicator (DQI) objectives specified at the inception of this program provide the basis for this data quality assessment; these DQI objectives are summarized in Table C-1.

The results of the QA/QC efforts are summarized in this section, and are organized according to specific types of measurements and analyses performed, such as integrated samples, continuous samples, flow rate measurements, etc. As a result of this evaluation, an error was found in the original Quality Assurance Project Plan (QAPjP) for the Baseline Study dated August 23, 1993. Table 1-1 of the QAPjP indicates that a total of 18 integrated samples would be collected at the Booth 1 exhaust face during each sampling event. Actually, 18 samples were collected at each of 2 exhaust faces, therefore Table 1-1 should have indicated 36, rather than 18. For the method completeness calculations presented in this section, the correct number of samples (36 per event) were used.

TABLE C-1. Baseline Study Objectives for Data Quality Indicators

Measurement Parameter	Measurement Method	Precision (RPD)	Accuracy (% Recovery)	Completeness (Percent)
Volume Flow				
Exhaust and intake faces	ACGIH Anemometer	20	±40	90
Ventilation ducts	EPA Method 2	20	±10	90
Particulate				
Exhaust and intake faces and painter	NIOSH 500	35	N/A	90
Ventilation ducts	EPA Method 5	N/A	N/A	90
Metals				
Exhaust and intake faces and painter	NIOSH 7300	35	±30	90
Ventilation ducts	EPA 0060	N/A	±30	90
Organics				
Integrated	NIOSH 1300	35	±30	90
Continuous	EPA Method 25A	20	±20	90
Isocyanates				
Exhaust and intake faces and painter	OSHA 42	35	±30	90
Ventilation ducts	NIOSH 5521	35	±30	90
Paints				
% Volatile	Grab sample, wt. loss on drying	20	±30	90
Usage rate	Observation, gravimetric analysis	N/A	N/A	N/A
Density	Grab sample, wt/vol analysis	20	±30	90

C.9.1 Assessment of Overall Data Quality

Nearly all the data quality objectives established for the QA/QC measurements taken throughout these test series were achieved. Some precision objectives were not met for side-by-side duplicate samples collected at specific sampling locations. The side-by-side duplicate results provide a means of determining sample variability (or precision). The variability noted from these duplicate results is doubtlessly due to sample orientation. Although great effort was expended to ensure that side-by-side duplicate samples had identical orientations, this was not always achievable.

At the inception of this program, it was anticipated that a significant level of sample variability would occur; to counter the impact of variability on data quality, a large sample set was collected. The results of multiple sampling events indicate that the exhaust face constituent concentration profiles derived for each booth remained consistent; therefore, the test matrix contained adequate sample redundancy and test event repetitions to neutralize the effects of individual sample variability.

C.9.2 Assessment of Flow Rate Measurement Data Quality

Air flow measurements were performed in the Booth 1 exhaust ducts according to EPA Method 2 procedures. In instances where triplicate flow measurement results were obtained, precision was determined with a relative standard deviation (RSD) analysis. For duplicate results, a relative percent difference (RPD) between successive flow rate measurements was calculated to assess precision. The Measurement precision range was 0.7 to 6.2 percent, and all but one of the measurements were valid, thus the 90 percent completeness objective was met.

The QAPjP stipulated that Booth 1 flow rate measurement accuracy be confirmed through a comparison of the Method 2 results to anemometer flow rate measurement data obtained at the booth exhaust face. Unfortunately, the Booth 1 exhaust plenums were configured such that flow stream lines were not perpendicular to the exhaust faces; in fact, the flow stream line incident angles varied across each filter face. Therefore, valid exhaust face anemometer data was not obtained for Booth 1. As an alternative procedure for assessing accuracy, the Method 2 flow rate data were compared to engineering design specification data taken from the efficiency curves corresponding to the Booth 1 exhaust fans. This analysis indicates that the flow rate data are within 13 percent of the expected value; therefore, a reasonable level of measurement accuracy was achieved.

The Booth 2 ventilation system was not configured to obtain a valid EPA Method 2 flow rate measurement. Therefore, during the Baseline Study, exhaust flow rates at this location were determined from anemometer measurements at the booth exhaust face. In addition, two exhaust stack anemometer flow rate measurements (one each day) were performed during the Baseline Study. The flow rates measured at the stack were approximately 20 percent higher than the flow rates measured at the booth exhaust face.

There are two possible reasons for this difference. At the booth exhaust face, flow stream lines were not always perpendicular; this may have affected the accuracy of the anemometer measurements. The difference observed between the two locations may also be a result of system in-leakage. Because the system is under negative pressure between the exhaust face and the fans, there is a potential for air to leak in through any openings, thereby increasing the total flow rate.

Whatever the reason(s) for the 20 percent difference, the results indicate reasonable agreement between the two methods, and also indicate that the ±40 percent accuracy DQI objective was met. For the calculations discussed in Section 6, the highest flow rate measurements (i.e. the stack measurements) were used to calculate the split-flow/recirculation rates because this ensured conservative results.

To assess measurement precision, the RPD between successive flow rate measurements was calculated. Measurement precision was assessed in the range of 4.8 to 5.2 percent. All of the Booth 2 flow rate measurements specified in the QAPjP were performed, therefore the 90 percent completeness objective was met.

C.9.3 Assessment of Particulate Results Data Quality

NIOSH 500 Samples

The QA assessment results for the NIOSH 500 data are summarized in Table C-2. A precision DQI objective of 35 percent was stipulated for NIOSH 500 measurements in the QAPjP. The precision of this measurement was determined through the comparison of duplicate results obtained during several of the NIOSH 500 sampling events in the paint booth. The data indicate an average RPD of 24 and 77 percent for the Phase I test events, respectively. The high variability is due primarily to the difficulty of properly orienting side-by-side duplicate samples. Potential sampling errors resulting from this variability are mitigated by the large sample set collected; increasing the size of the sample set will reduce averaging errors due sample variability problems.

The completeness DQI objective for the NIOSH 500 particulate concentration measurements was 90 percent; this objective was met for both the Baseline and Continuation Study results.

EPA Method 5 Samples

Particulate concentration measurements were performed in the booth exhaust ducts according to EPA Method 5 sampling and analysis procedures. The only DQI objective stipulated in the QAPjP for EPA Method 5 sampling is completeness; a precision DQI objective could not be established due to the dynamic nature of booth operations. Because a spike and recovery analysis is not possible, a DQI objective for accuracy was not established. A 96 percent completeness level was achieved for the Phase I test results. Although method precision and accuracy could not be assessed, there were sufficient samples collected to ensure that the Method 5 results are not skewed due to sample variability.

Table C-2. NIOSH 500 Particulate Measurement Data Quality Assessment Results

Data Quality Indicator	Parameter	Baseline Study	Continuation Study
Precision	No. of duplicate samples	13	16
	RPD Range	3 - 88%	7 - 172%
	Average RPD	**24%**	77%
Precision DQI Objective:		35%	35%
Completeness	No. of samples required	154	256
	No. of samples collected	152	252
	Completeness	**99%**	**98%**
Completeness DQI Objective:		90%	90%

Those measurements in which the DQI objective was met or exceeded are indicated in **boldface**

C.9.4 Assessment of Metal Sampling Data Quality

In general, the quality of the metal sampling data is quite high, as indicated below. The results of the field test indicate that the exhaust streams contain fairly low metal concentrations. Therefore, to derive conclusive results from the data obtained, the stack samples obtained from the EPA Method 29 sampling events were blank corrected, although the QAPjP indicated that no blank corrections would be made.

NIOSH 7300 Samples

The QA assessment results for the NIOSH 7300 data are summarized in Table C-3. A precision DQI objective of 35 percent was stipulated for the NIOSH 7300 measurements in the QAPjP. The precision of this measurement was determined through the comparison of duplicate results obtained from several sampling events in the paint booth. The fact that the precision DQI objective was not met is attributable to the difficulty of obtaining identical orientations for side-by-side duplicate samples. Potential sampling errors resulting from this variability are mitigated by the large sample set collected; increasing the size of the sample set will reduce averaging errors due sample variability problems.

For the NIOSH 7300 samples, accuracy is established by conducting a multi-level spike and recovery study. The results (presented in Table C-3) indicate that a high level of accuracy was achieved for this sample set. Furthermore, the 90 percent completeness DQI objective was also achieved.

Table C-3. NIOSH 7300 Measurement Data Quality Assessment Results

Data Quality Indicator	Parameter	Baseline Study		Continuation Study
		Chromium	Zinc	Chromium
Precision	No. of duplicate samples	8	8	8
	RPD Range	3 - 159%	0 - 82%	7 - 195%
	Average RPD	40%	**25%**	70%
	Precision DQI objective:	35%	35%	35%
Completeness	No. of samples required	120	120	198
	No. of samples collected	116	116	198
	Completeness	**97%**	**97%**	**100%**
	Completeness DQI Objective:	90%	90%	90%
Accuracy	% Recovery (chrome)			
	Low level		90	
	Mid Level		99/101	
	High Level		88	
	Overall Accuracy		**-7%**	
	Accuracy DQI objective:		± 30%	

Those measurements in which the DQI objective was met or exceeded are indicated in **boldface**

EPA Method 0060 Multiple Metals Samples

Target metal analyte concentration measurements were performed in the booth exhaust ducts according to EPA Method 0060 Multiple Metals sampling and analysis procedures. The only DQI objectives stipulated in the QAPjP for this method are completeness and accuracy; precision could not be established due to the dynamic nature of booth operations. The results of the EPA Method 0060 data QA analysis are presented in Table C-4.

Accuracy was established via a spike and recovery study conducted on clean sampling media. Chrome and zinc recoveries were established at several spiking levels for each of the two sample train fractions. The chromium results indicate a high level of accuracy; the fact that the numbers are biased high indicate that the sampling data yield conservative results (i.e. the recirculation calculations are based on data with a high, and therefore conservative, bias). The zinc spike and recovery data indicate that the accuracy achieved for the zinc data is not as high as for the chrome results. Zinc is a minor contributor to the exposure index calculations, thus bias introduced from poor recovery did not effect the project results or conclusions.

Table C-4. EPA Method 0060 Measurement Data Quality Assessment Results

Data Indicator	Parameter	Chrome	Zinc
Accuracy	% Recovery (front half)		
	Low level	125	340
	Mid Level	100/101	107/107
	High Level	96	90
	Average	106	161
	Overall Accuracy	33%	
	% Recovery (back half)		
	Low level	150	127
	Mid level	133	96
	High level	125	80
	Average	136	101
	Overall Accuracy	**19%**	
Accuracy DQI objective:		30%	
Completeness	No. of samples required	18	6
	No. of samples collected	18	6
	Completeness	**100%**	**100%**
Completeness DQI Objective:		90%	90%

C.9.5 Assessment of Speciated Organic NIOSH 1300 Sampling Data Quality

The greatest sampling effort expended during the baseline study focussed on obtaining accurate and representative organic species data during typical painting operations. The results of the method precision analysis are summarized in Table C-5; rather than reporting the precision results from every set of duplicate samples, this table presents the RPD range and average values. Method accuracy was established through a multi-level spike and recovery study of each of the target analytes; these results are presented in Table C-6. Completeness results are summarized in Table C-7. The level of data quality achieved for this method was quite high.

C.9.6 Isocyanate Sampling Results

Isocyanate concentrations in the booth and in the stack were measured according to OSHA 42 and NIOSH 5521 sampling procedures, respectively.

Table C-5. NIOSH Method 1300 Sample Precision Assessment Results

Compound	RPD Range	Average RPD
Methyl ethyl ketone	4 - 31	**12**
Ethyl benzene	3 - 19	**10**
Xylenes	0 - 24	**9**
Butyl acetate	1 - 27	**9**
Methyl iso-amyl ketone	1 - 198	**24**
Toluene	0 - 28	**10**
Hexyl acetate	1 - 120	**26**
n-Butyl alcohol	2 - 133	41
Precision DQI Objective:		30%

Those measurements in which the DQI objective was met or exceeded are indicated in **boldface**

Table C-6. NIOSH Method 1300 Sample Accuracy Assessment Results

Compound	Percent Recovery (%)				Method Bias (%)
	Low level	Mid-level	High level	Average	
Methyl ethyl ketone	88	87	78	84	**- 16**
Ethyl benzene	92	96	97	95	**- 5**
m,p-Xylene	90	95	94	93	**- 7**
o-Xylene	102	105	113	107	**+ 7**
Butyl acetate	93	97	96	95	**- 5**
Methyl iso-amyl ketone	97	99	97	98	**- 2**
Toluene	93	98	99	97	**- 3**
Hexyl acetate	88	89	92	90	**- 10**
n-Butyl alcohol	79	81	84	81	**- 19**
				Accuracy DQI objective:	± 20 %

Those measurements in which the DQI objective was met or exceeded are indicated in **boldface**

OSHA 42 Results

The OSHA 42 QA results, summarized in Table C-8, indicate that a reasonably high level of data quality was achieved. The precision DQI objective was not met, which is attributable to the difficulty of obtaining identical orientations for side-by-side duplicate samples. Potential sampling errors resulting from this variability are mitigated by the large sample set collected; by increasing the size of the sample set will reduce averaging errors due sample variability problems. The other data quality indicators indicate that accurate and comprehensive results were obtained.

NIOSH 5521 Results

The quality of the results obtained from the NIOSH 5521 impinger samples is indicated in Table C-9. All the DQI objectives established for this measurement were met, indicating that accurate and reliable results were obtained.

C.9.7 Assessment of Paint Sample Data Quality

Coating and solvent samples were collected to perform a VOC mass balance for each test series. Table C-10 summarizes the precision, accuracy and completeness results for the coating sample percent volatile and density measurements performed. For the precision results obtained for the percent volatile analysis, only one result fell slightly outside the DQI objective range; this discrepancy is not considered significant.

C.9.8 Assessment of EPA Method 25A Monitoring Data Quality

As indicated in Section 5.2, the EPA Method 25A results were used to conduct a mass balance evaluation. The mass balance closure results indicate that a high level of data quality and measurement accuracy was achieved. The actual QA procedures (calibration and drift/span checks) implemented during Method 25A sampling are summarized in Table C-11. Precision was assessed from zero gas and mid-level calibration gas drift checks. Accuracy was established by injecting multi-level calibration gases into the FID, and monitoring instrument response.

Table C-7. NIOSH Method 1300 Completeness Assessment Results

Parameter	Result
No. of samples stipulated in QA Plan	177
No. of samples collected	166
Completeness	**94%**
Completeness DQI objective:	90%

Those measurements in which the DQI objective was met or exceeded are indicated in **boldface**

Table C-8. OSHA Method 42 Data Quality Assessment Results

Data Quality Indicator	Parameter	Result
Precision	No. of duplicate samples	9
	RPD Range	0 - 158%
	Average RPD	45%
	Precision DQI objective:	35%
Accuracy	Low level percent recovery	Non-Detect
	Mid-level percent recovery	76%
	High level percent recovery	78%
	Average percent recovery	77%
	Overall method accuracy	- **23%**
	Accuracy DQI objective:	± 30%
Completeness	No. of samples stipulated in QA Plan	114
	No. of samples collected	110
	Completeness	**96%**
	Completeness DQI objective:	90%

Those measurements in which the DQI objective was met or exceeded are indicated in **boldface**

Table C-9. NIOSH Method 5521 Data Quality Assessment Results

Data Quality Indicator	Parameter	Result
Precision	No. of duplicate samples	1
	Average RPD	**4%**
	Precision DQI Objective:	35%
Accuracy	Low level percent recovery	100%
	Mid-level percent recovery	93%
	High level percent recovery	100%
	Average percent recovery	98%
	Overall method accuracy	**- 2%**
	Accuracy DQI Objective:	± 30%
Completeness	No. of samples stipulated in QA Plan	6
	No. of samples collected	6
	Completeness	**100%**
	Completeness DQI Objective:	90%

Those measurements in which the DQI objective was met or exceeded are indicated in **boldface**

Table C-10. Paint Sample Analysis Data Quality Assessment Results

Data Quality Indicator	Parameter	Result
Precision	% Volatile range	0.0-26%
	% Volatile average	**6.0%**
	Objective:	20%
Accuracy	Density range	**0.6-4.8%**
	Density average	**2.7%**
	% Volatile range	**0.0-10%**
	% Volatile average	**5.0%**
	Objective:	±30%
Completeness	# samples required	1 per coating type
	# samples collected	1 per coating type
	Completeness	**100%**
	Objective:	90%

Those measurements in which the DQI objective was met or exceeded are indicated in **boldface**

Table C-11. EPA Method 25A Data Quality Assessment Results

Data Quality Indicator	Parameter	Result
Precision	High range cal gas drift	**0.0 - 10%**
	Zero cal gas drift	**0.0 - 1.0%**
	Precision DQI objective:	20%
Accuracy	Mid range cal gas linearity	**0.0 - 0.6%**
	Low range cal gas linearity	**0.0 - 0.8%**
	Accuracy DQI objective:	±20%
Completeness	No. sampling events in QA Plan	28
	No. sampling events completed	28
	Completeness	**100%**
	Completeness DQI objective:	90%

Those measurements in which the DQI objective was met or exceeded are indicated in **boldface**

Booth 1 Exhaust Stack Flowrates

Date	Time	Test	Flowrate (dscfm)
9/14	AM	Particulate 1	57,394
9/14	PM	Particulate 2	57,091
9/15	AM	Isocyanate 1	55,817
9/15	PM	Isocyanate 2	55,914
9/15	Night	Isocyanate 3	52,629
9/16	AM	Metals 1	55,934
9/16	PM	Metals 2	53,189
9/16	Night	Particulate 3	55,476
9/17	AM	Metals 3	56,095
9/17	PM	Organics 1	53,504
9/20	AM	Organics 2	49,848
9/20	PM	Organics 3	48,266
11/15	AM	Filter Efficiency 1	59,254
11/15	PM	Filter Efficiency 2	60,833
11/17	AM	Filter Efficiency 3	53,877
11/17	PM	Filter Efficiency 4	53,797

Area 11 Exhaust Stack Flowrates

Date	Time	Test	Flowrate (dscfm)
9/22	AM	Organics 1	53,232
9/22	PM	Organics 2	
9/23	AM	Particulate 1	50,720
9/23	PM	Particulate 2	
11/18	AM	Metals 1	67,861
11/18	PM	Metals 2	64,569
11/19	AM	Metals 3	61,309

TEST: ORGANICS # 1
DATE: 09/17/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

METHYL ETHYL KETONE (mg/m^3)

R1 2.0	R2 1.4	R3 1.1
R4 7.4	R5 6.8	R6 4.5
R7 3.8	R8 8.8	R9 7.3, 6.9
R10 10.2	R11 10.5	R12 8.8
R13 11.0	R14 10.8	R15 9.2
R16 5.8	R17 6.9	R18 4.7

Painter 1 21.0
Painter 2 15.2

North Stack 3.3
South Stack 3.0

Blank (ug/tube)	
<	2
<	2

L3 1.6	L2 2.0	L1 2.9
L6 < no sample, 3.7	L5 3.5	L4 8.1
L9 3.4	L8 6.0	L7 no sample
L12 5.6	L11 8.4, 11.4	L10 9.1
L15 9.8	L14 9.9	L13 10.5
L18 8.8 <	L17 no sample	L16 12.3

C.2

TEST: ORGANICS # 2
DATE: 09/20/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

METHYL ETHYL KETONE (mg/M3)

R1 7.1	R2 1.4	R3 1.2
R4 7.2	R5 5.5	R6 3.4
R7 8.7	R8 no sample	R9 6.2 6.5
R10 8.2	R11 7.3	R12 8.1
R13 8.6	R14 8.9	R15 8.2
R16 6.9	R17 6.0	R18 5.1

Painter 1
15.0

Painter 2
13.1

North Stack
4.2
3.9

South Stack
4.0

Blank (ug/tube)
< 2
< 2

L3 2.2	L2 2.3	L1 3.5
L6 7.0 5.1	L5 6.4	L4 6.2
L9 6.7	L8 8.6	L7 10.4
L12 8.1	L11 10.3 9.9	L10 11.3
L15 9.1	L14 11.0	L13 11.5
L18 7.3	L17 8.3	L16 9.3

C2

TEST: ORGANICS # 3
DATE: 09/20/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW AFB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

METHYL ETHYL KETONE (mg/M3)

R1	R2	R3
1.6	1.3	0.9
R4	R5	R6
7.5	3.8	4.9
R7	R8	R9
9.0 <	no sample	7.5
		8.3
R10	R11	R12
9.7	9.4	8.6
R13	R14	R15
9.1	9.8 <	no sample
R16	R17	R18
6.7 <	0.0	5.3

Painter 1	19.5
Painter 2	17.4

North Stack	5.1
South Stack	4.8
Blank (ug/tube)	2.0

Blank (ug/tube)	
<	2.0
<	2.0

	L3	L2	L1
	2.0	2.4	3.1
	L6	L5	L4
	5.2	6.5	13.0
	5.6		
	L9	L8	L7
	7.8	9.2	10.6
	L12	L11	L10
<	0.0	10.7	no sample
		12.0	
	L15	L14	L13
	12.8	9.1	13.6
	L18	L17	L16
	9.9	12.8	13.7

C2

TEST: ORGANICS # 1
DATE: 09/17/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

ETHYL BENZENE (mg/m^3)

R1 0.7535	R2 0.6313	R3 0.3903
R4 3.32	R5 3.12	R6 2.25
R7 2.08	R8 4.31	R9 3.69, 3.24
R10 5.93	R11 6.36	R12 4.88
R13 7.63	R14 7.00	R15 0.36
R16 0.24	R17 4.17	R18 0.19

Painter 1	16.3412
Painter 2	10.23
North Stack	3.51
South Stack	2.34
Blank (ug/tube)	
<	1
<	1

L3 0.6865	L2 0.9585	L1 0.0941
L6 < no sample < 2.93	L5 0.03	L4 5.62
L9 0.35	L8 0.63	L7 no sample
L12 5.74	L11 8.09, 8.65	L10 0.70
L15 7.68	L14 9.33	L13 9.66
L18 6.76 <	L17 no sample	L16 8.96

C2

TEST: ORGANICS # 2
DATE: 09/20/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

ETHYL BENZENE (mg/M3)

R1 2.3	R2 0.2	R3 0.2
R4 2.3	R5 1.8	R6 1.3
R7 3.1	R8 no sample	R9 2.4 2.5
R10 3.3	R11 0.7	R12 3.3
R13 4.1	R14 4.2	R15 3.6
R16 4.0	R17 3.1	R18 2.6

Painter 1 1.3
Painter 2 11.8

North Stack 4.3 3.9
South Stack 2.4

Blank (ug/tube)
< 1
< 1

L3 0.7	L2 0.8	L1 1.4
L6 3.7 3.3	L5 4.0	L4 3.8
L9 4.7	L8 5.9	L7 6.9
L12 5.8	L11 7.4 7.0	L10 7.9
L15 6.7	L14 8.1	L13 8.7
L18 5.4	L17 6.3	L16 7.1

TEST:	ORGANICS # 3	BARSTOW AFB	D E Initials:	ljl
DATE:	09/20/93 PM	BOOTH 1 TESTS	Q A Initials:	du
METHOD:	MOD. NIOSH 1300	ACUREX PROJECT 8517	Print Date:	04/04/94

:: ::

GRID CHART 2 - ETHYL BENZENE

ETHYL BENZENE (mg/M3)

R1	R2	R3
0.39	0.36	0.27
R4	R5	R6
3.01	2.55	2.36
R7	R8	R9
4.16 <	no sample	3.53
		3.80
R10	R11	R12
5.33	5.01	4.24
R13	R14	R15
5.28	5.53 <	no sample
R16	R17	R18
3.81 <	0.02	3.00

Painter 1	9.80
Painter 2	11.60
North Stack	3.56
South Stack	2.70
Blank (ug/tube)	1.00
Blank (ug/tube)	
<	1.0
<	1.0

	L3	L2	L1
	0.90	0.91	1.31
	L6	L5	L4
	3.35	3.75	8.50
	3.15		
	L9	L8	L7
	5.11	5.68	6.21
	L12	L11	L10
<	0.02	7.65	no sample
		7.43	
	L15	L14	L13
	7.93	4.81	8.48
	L18	L17	L16
	6.97	8.41	8.92

C2

TEST: ORGANICS # 1
DATE: 09/17/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

XYLENES (mg/m^3)

R1 2.8	R2 2.4	R3 1.7
R4 12.4	R5 11.6	R6 8.4
R7 7.7	R8 16.3	R9 13.9, 12.3
R10 22.4	R11 22.3	R12 16.9
R13 26.6	R14 24.5	R15 19.9
R16 13.0	R17 15.6	R18 10.5

Painter 1: 61.8

Painter 2: 38.9

North Stack: 14.2

South Stack: 9.8

Blank (ug/tube): 17.1, 9.9

L3 2.4	L2 3.3	L1 5.4
L6 no sample, 10.1	L5 14.0	L4 20.9
L9 15.0	L8 22.0	L7 no sample
L12 22.8	L11 31.6, 29.8	L10 32.1
L15 28.5	L14 36.3	L13 37.4
L18 25.4	L17 no sample	L16 33.7

C2

TEST: ORGANICS # 2
DATE: 09/20/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

XYLENES (mg/M3)

R1	R2	R3
8.6	1.0	1.0
R4	R5	R6
8.7	6.7	0.9
R7	R8	R9
11.6	no sample	9.0
		9.2
R10	R11	R12
12.5	17.0	12.7
R13	R14	R15
15.4	15.8	13.9
R16	R17	R18
14.9	11.8	9.9

Painter 1	
	57.7
Painter 2	
	44.4
North Stack	
	17.2
	15.5
South Stack	
	9.6
Blank (ug/tube)	
	13
	5

L3	L2	L1
2.4	2.8	5.2
L6	L5	L4
15.7	15.1	14.4
12.3		
L9	L8	L7
17.8	22.0	25.8
L12	L11	L10
22.1	27.5	29.7
	26.3	
L15	L14	L13
25.4	25.2	33.0
L18	L17	L16
20.4	24.0	26.9

C2

TEST: ORGANICS # 3
DATE: 09/20/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW AFB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

:: ::

GRID CHART 3 - XYLENES

XYLENES (mg/M3)

R1 1.5	R2 1.4	R3 1.0
R4 12.3	R5 9.4	R6 8.7
R7 15.2	R8 no sample	R9 12.9 14.2
R10 19.4	R11 18.2	R12 15.5
R13 19.5	R14 20.0	R15 no sample
R16 13.9 <	R17 0.0	R18 11.0

Painter 1 35.2

Painter 2 40.9

North Stack 13.1

South Stack 10.0

Blank (ug/tube) 2.7

Blank (ug/tube) 4.0 5.0

L3 3.4	L2 3.3	L1 4.7
L6 12.4 11.5	L5 13.7	L4 30.8
L9 18.9	L8 20.7	L7 18.3
L12 0.1	L11 27.7 27.1	L10 no sample
L15 28.6	L14 17.7	L13 31.2
L18 25.3	L17 30.6	L16 33.2

C2

TEST:	ORGANICS # 1	BARSTOW MCLB		D E Initials:	ljl
DATE:	09/17/93 PM	BOOTH 1 TESTS		Q A Initials:	du
METHOD:	MOD. NIOSH 1300	ACUREX PROJECT 8517		Print Date:	04/04/94

PROPYLENE GLYCOL METHYL ETHER ACETATE (PGMEA) (mg/m^3)

R1 0.23	R2 0.16	R3 0.12
R4 0.82	R5 1.03	R6 0.65
R7 0.67	R8 1.24	R9 1.18 0.87
R10 1.33 <	R11 0.02	R12 1.00
R13 < 0.02 <	R14 0.03	R15 1.32
R16 0.98	R17 1.06	R18 0.78

Painter 1 3.23
Painter 2 2.55
North Stack 1.15
South Stack 0.79
Blank (ug/tube) < 1.0 < 1.0

L3 0.20	L2 0.28	L1 0.44
L6 < no sample < 0.03	L5 0.96	L4 1.44
L9 1.02	L8 1.44	L7 no sample
L12 1.47	L11 2.65 < 0.02	L10 0.33
L15 < 0.02	L14 2.04	L13 1.93
L18 1.58 <	L17 no sample <	L16 0.02

C2

TEST: ORGANICS # 2
DATE: 09/20/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

PROPYLENE GLYCOL METHYL ETHER ACETATE [PGMEA] (mg/M3)

R1 0.6	R2 0.1	R3 0.1
R4 0.7	R5 0.5	R6 0.4
R7 0.8	R8 no sample	R9 0.7 1.3
R10 0.9	R11 1.1	R12 0.9
R13 1.0	R14 1.1	R15 1.3
R16 1.0	R17 1.0	R18 0.7

Painter 1 < 0.0
Painter 2 0.5
North Stack 1.0 1.1
SoSouth Stack 0.7
Blank (ug/tube) < 1 < 1

	L3 0.3 <	L2 0.0
<	L6 0.0 1.0	L5 1.4
	L9 1.1	L8 1.4
	L12 1.6	L11 1.3 < 1.6
	L15 1.4	L14 5.4 <
	L18 1.4	L17 1.4

L1 0.5	
L4 1.4	
L7 1.5	
L10 0.0	
L13 0.0	
L16 1.5	

C.2

TEST:	ORGANICS # 3	BARSTOW AFB		D E Initials:	ljl
DATE:	09/20/93 PM	BOOTH 1 TESTS		Q A Initials:	du
METHOD:	MOD. NIOSH 1300	ACUREX PROJECT 8517		Print Date:	04/04/94

:: ::

GRID CHART 4 - PGMEA

PROPYLENE GLYCOL METHYL ETHER ACETATE [PGMEA] (mg/M3)

R1	R2	R3
< 0.03	< 0.02	< 0.02
R4	R5	R6
0.97	0.83	0.83
R7	R8	R9
1.22	< no sample	1.12
		< 0.02
R10	R11	R12
1.46	1.47	1.35
R13	R14	R15
< 0.02	1.53	< no sample
R16	R17	R18
1.25	< 0.02	1.04

Painter 1	
<	0.03
Painter 2	
<	0.03
North Stack	
<	0.03
South Stack	
<	0.03
Blank (ug/tube)	
	1.00
Blank (ug/tube)	
<	1.0
<	1.0

L3	L2	L1
< 0.03	< 0.02	< 0.03
L6	L5	L4
< 0.02	< 0.02	< 0.02
< 0.02		
L9	L8	L7
1.63	1.70	1.83
L12	L11	L10
< 0.02	2.31	< no sample
	< 0.03	
L15	L14	L13
< 0.02	1.65	< 0.02
L18	L17	L16
1.91	< 0.02	< 0.02

C.2

TEST: ORGANICS # 1
DATE: 09/17/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

BUTYL ACETATE (mg/m^3)

R1 2.5	R2 2.1	R3 1.5
R4 10.9	R5 10.3	R6 7.2
R7 6.6	R8 13.9	R9 12.0, 10.7
R10 19.0	R11 19.4	R12 15.0
R13 23.0	R14 21.3	R15 17.1
R16 11.2	R17 13.4	R18 9.0

Painter 1	51.1
Painter 2	32.7
North Stack	11.1
South Stack	8.0
Blank (ug/tube)	
<	1.0
<	1.0

L3 2.0	L2 2.8	L1 4.5
L6 no sample, 8.4	L5 10.7	L4 17.9
L9 11.4	L8 17.1	L7 no sample
L12 17.6	L11 25.1, 25.9	L10 25.4
L15 24.3	L14 28.4	L13 29.9
L18 21.3 <	L17 no sample	L16 28.7

C.2

TEST: ORGANICS # 2
DATE: 09/20/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

BUTYL ACETATE (mg/M3)

R1	R2	R3
7.4	0.9	0.9
R4	R5	R6
7.5	5.7	4.2
R7	R8	R9
9.8	no sample	7.5
		8.0
R10	R11	R12
10.5	13.4	10.4
R13	R14	R15
12.8	13.1	11.6
R16	R17	R18
12.3	9.9	8.1

Painter 1	
	46.6
Painter 2	
	36.6

North Stack	
	12.9
	12.2
South Stack	
	7.7

Blank	
(ug/tube)	
<	1
<	1

L3	L2	L1
2.1	2.6	4.4
L6	L5	L4
11.4	12.9	11.8
10.2		
L9	L8	L7
14.7	18.2	21.4
L12	L11	L10
18.3	22.9	24.5
	21.9	
L15	L14	L13
20.8	25.0	26.9
L18	L17	L16
16.7	19.6	22.2

C.2

TEST: ORGANICS # 3
DATE: 09/20/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW AFB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

:: ::

GRID CHART 5 - BUTYL ACETATE

BUTYL ACETATE (mg/m^3)

R1 1.3	R2 1.1	R3 0.9
R4 9.2	R5 7.8	R6 7.2
R7 12.2 <	R8 no sample	R9 10.8 11.9
R10 16.0	R11 15.1	R12 12.8
R13 15.8	R14 16.6 <	R15 no sample
R16 11.5 <	R17 0.0	R18 9.1

Painter 1 30.6
Painter 2 34.5

North Stack 10.6
South Stack 8.2
Blank (ug/tube) 1.0

Blank (ug/tube)
< 1.0
< 1.0

L3 2.8	L2 2.9	L1 4.0
L6 10.1 9.5	L5 11.4	L4 25.2
L9 15.1	L8 16.9	L7 18.5
< L12 0.0	L11 22.5 22.3	L10 no sample
L15 23.7	L14 14.6	L13 25.3
L18 20.6	L17 24.9	L16 26.8

C.2

TEST:	ORGANICS # 1	BARSTOW MCLB		D E Initials:	ljl
DATE:	09/17/93 PM	BOOTH 1 TESTS		Q A Initials:	du
METHOD:	MOD. NIOSH 1300	ACUREX PROJECT 8517		Print Date:	04/04/94

METHYL ISO-AMYL KETONE (mg/m^3)

R1 24	R2 19	R3 14
R4 126	R5 118	R6 82
R7 73	R8 168	R9 141, 124
R10 239	R11 243	R12 180
R13 296	R14 267	R15 215
R16 140	R17 167	R18 111

Painter 1	490
Painter 2	310
North Stack	119
South Stack	80
Blank (ug/tube)	
<	1
<	1

L3 30	L2 31	L1 5.4
L6 no sample, 106	L5 116	L4 228
L9 127	L8 186	L7 no sample
L12 194	L11 273, 328	L10 271
L15 319	L14 307	L13 324
L18 282	L17 no sample	L16 379

C.2

TEST: ORGANICS # 2
DATE: 09/20/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

METHYL ISO-AMYL KETONE (mg/M3)

R1 88.7	R2 8.0	R3 7.7
R4 89.9	R5 68.7	R6 49.4
R7 114.1	R8 no sample	R9 88.7 91.1
R10 124.6	R11 143.2	R12 124.6
R13 157.3	R14 159.8	R15 3.0
R16 153.0	R17 2.5	R18 99.3

Painter 1
493

Painter 2
385

North Stack
144
135

South Stack
82.0

Blank (ug/tube)
< 1
< 1

L3 20.2	L2 24.7	L1 48.5
L6 148.9 127.4	L5 152.8	L4 146.0
L9 189.2	L8 231.7	L7 272.9
L12 236.5	L11 293.9 280.4	L10 318.6
L15 272.8	L14 323.1	L13 351.8
L18 217.2	L17 254.7	L16 288.9

C.2

TEST: ORGANICS # 3
DATE: 09/20/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW AFB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

:: ::

GRID CHART 6 - MIAK

METHYL ISO-AMYL KETONE (mg/M3)

R1	R2	R3
13	13	10
R4	R5	R6
104	89	84
R7	R8	R9
148	no sample	125
		152
R10	R11	R12
193	182	152
R13	R14	R15
195	222	no sample
R16	R17	R18
137	1	107

Painter 1	379
Painter 2	356
North Stack	4
South Stack	87
Blank (ug/tube)	1

Blank (ug/tube)	
<	1
<	1

L3	L2	L1
28	32	46
L6	L5	L4
1	122	276
130		
L9	L8	L7
209	228	250
L12	L11	L10
0	306	no sample
	302	
L15	L14	L13
329	195	349
L18	L17	L16
286	350	376

C.2

TEST: ORGANICS # 1
DATE: 09/17/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

TOLUENE (mg/m^3)

R1 0.85	R2 0.66	R3 0.42
R4 2.87	R5 2.70	R6 1.86
R7 1.67	R8 3.43	R9 3.02, 2.68
R10 4.15	R11 4.29	R12 3.57
R13 4.84	R14 4.61	R15 3.90
R16 2.4775	R17 3.0954	R18 2.1321

Painter 1 11.26
Painter 2 7.80
North Stack 1.90
South Stack 1.72

Blank (ug/tube)
< 1
< 1

L3 0.61	L2 0.78	L1 1.20
L6 no sample, 1.77	L5 1.96	L4 3.49
L9 2.02	L8 3.20	L7 no sample
L12 3.14	L11 4.73, 5.05	L10 4.86
L15 4.44	L14 5.43	L13 5.75
L18 3.8939 <	L17 no sample	L16 5.2248

C.2

TEST: ORGANICS # 2
DATE: 09/20/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

TOLUENE (mg/M3)

R1 2.1	R2 0.5	R3 0.4
R4 2.2	R5 1.7	R6 1.1
R7 2.7	R8 no sample	R9 1.9 2.1
R10 2.7	R11 3.2	R12 2.6
R13 2.9	R14 3.0	R15 2.7
R16 2.6	R17 2.2	R18 1.9

Painter 1	8.3
Painter 2	6.7

North Stack	2.4
	2.3
South Stack	1.7

Blank (ug/tube)	
<	1
<	1

L3 0.8	L2 0.9	L1 1.3
L6 2.5 2.1	L5 2.6	L4 2.5
L9 2.9	L8 3.6	L7 4.2
L12 3.4	L11 4.3 4.1	L10 4.5
L15 3.9	L14 4.6	L13 4.9
L18 3.1	L17 3.5	L16 4.0

C.2

TEST: ORGANICS # 3
DATE: 09/20/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW AFB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

:: ::

GRID CHART 7 - TOLUENE

TOLUENE (mg/M3)

R1 0.77	R2 0.64	R3 0.50
R4 2.74	R5 2.30	R6 2.06
R7 3.40 <	R8 no sample	R9 2.96 3.26
R10 3.86	R11 3.69	R12 3.28
R13 3.79	R14 3.92 <	R15 no sample
R16 2.80 <	R17 0.02	R18 2.29

Painter 1 7.59

Painter 2 7.41

North Stack 2.44

South Stack 2.04

Blank (ug/tube) 1.00

Blank (ug/tube)
< 1.0
< 1.0

L3 0.96	L2 1.00	L1 1.36
L6 2.41 2.40	L5 2.84	L4 5.67
L9 3.51	L8 4.06	L7 4.49
L12 0.03	L11 4.77 5.15	L10 no sample
L15 5.31	L14 3.76	L13 5.68
L18 4.56	L17 5.47	L16 5.72

C.2

TEST: ORGANICS # 1
DATE: 09/17/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

HEXYL ACETATE (mg/m^3)

R1 < MDL	R2 < MDL	R3 < MDL
R4 < MDL	R5 < MDL	R6 < MDL
R7 < MDL	R8 < MDL	R9 < MDL * < MDL
R10 < MDL	R11 < MDL	R12 < MDL
R13 < MDL	R14 < MDL	R15 < MDL
R16 < MDL	R17 < MDL	R18 < MDL

Painter 1 < MDL
Painter 2 < MDL

North Stack < MDL
South Stack < MDL

Blank (ug/tube) < MDL < MDL

L3 < MDL	L2 < MDL	L1 < MDL
L6 no sample < MDL	L5 < MDL	L4 < MDL
L9 < MDL	L8 < MDL	L7 no sample
L12 < MDL	L11 < MDL < MDL	L10 < MDL
L15 < MDL	L14 < MDL	L13 < MDL
L18 < MDL	L17 no sample	L16 < MDL

C.2

TEST: ORGANICS # 2
DATE: 09/20/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

HEXYL ACETATE (mg/M3)

R1 ND	R2 ND	R3 ND
R4 ND	R5 ND	R6 ND
R7 1.4	R8 no sample	R9 ND ND
R10 1.5	R11 ND	R12 ND
R13 ND	R14 ND	R15 ND
R16 ND	R17 ND	R18 1.7

Painter 1	5.6
Painter 2	5.1

North Stack	
	ND
	ND
South Stack	
	ND

Blank (ug/tube)	
<	1
	1

L3 0.3	L2 0.4	L1 ND
L6 1.8	L5 ND	L4 1.9
ND		
L9 ND	L8 ND	L7 3.6
L12 ND	L11 3.9 3.8	L10 4.5
L15 ND	L14 4.4	L13 ND
L18 4.1	L17 3.9	L16 3.8

C.2

TEST: ORGANICS # 3
DATE: 09/20/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW AFB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

:: ::

GRID CHART 8 - HEXYL ACETATE

HEXYL ACETATE (mg/M3)

R1	R2	R3
0.3027	0.2605	0.1894
R4	R5	R6
1.74	1.54	1.30
R7	R8	R9
2.54 <	no sample	1.99
		2.22
R10	R11	R12
3.07	2.84	2.40
R13	R14	R15
3.17	3.36 <	no sample
R16	R17	R18
2.16 <	0.02	1.69

Painter 1
6.3737

Painter 2
7.44

North Stack
1.73

South Stack
1.25

Blank
(ug/tube)
1.00

Blank
(ug/tube)
< 1.0
< 1.0

L3	L2	L1
0.3394	0.3763	0.5912
L6	L5	L4
1.73	1.91	4.86
1.38		
L9	L8	L7
3.14	3.64	4.10
L12	L11	L10
0.54	3.79	no sample
	3.82	
L15	L14	L13
4.71	2.75	5.14
L18	L17	L16
4.01	5.05	5.43

C.2

TEST: ORGANICS # 1
DATE: 09/17/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

n-BUTYL ALCOHOL (mg/m^3)

R1 < 0.049	R2 < 0.047	R3 0.049
R4 0.085	R5 < 0.049	R6 0.062
R7 < 0.050	R8 < 0.050	R9 0.076 0.075
R10 0.130	R11 0.114	R12 0.085
R13 0.130	R14 0.120	R15 0.082
R16 0.073	R17 0.076	R18 0.052

Painter 1	< 0.061
Painter 2	< 0.058
North Stack	< 0.058
South Stack	< 0.057
Blank (ug/tube)	< 2
	< 2

L3 < 0.051	L2 < 0.050	L1 L1 0.052
L6 < no sample 0.056	L5 0.053	L4 0.110
L9 < 0.050	L8 < 0.049	L7 no sample
L12 < 0.050	L11 0.212 < 0.168	L10 0.053
L15 0.144	L14 < 0.051	L13 < 0.050
L18 0.128	L17 < no sample	L16 0.166

C.2

TEST:	ORGANICS # 2	BARSTOW MCLB		D E Initials:	ljl
DATE:	09/20/93 AM	BOOTH 1 TESTS		Q A Initials:	du
METHOD:	MOD. NIOSH 1300	ACUREX PROJECT 8517		Print Date:	04/04/94

n-BUTYL ALCOHOL (mg/M3)

	R1	R2	R3
	0.05 <	0.04 <	0.04
	R4	R5	R6
	0.05 <	0.04 <	0.04
	R7	R8	R9
<	0.04 <	no sample <	0.04
		<	0.04
	R10	R11	R12
<	0.04 <	0.04 <	0.04
	R13	R14	R15
<	0.04	0.23	1.34
	R16	R17	R18
<	0.04	0.08	0.06

Painter 1	
	0.39
Painter 2	
<	0.04

North Stack	
	0.09
<	0.04
South Stack	
<	0.04

Blank	
(ug/tube)	
<	2
<	2

	L3	L2	L1
<	0.04 <	0.04	0.04
	L6	L5	L4
<	0.04 <	0.04 <	0.04
<	0.04		
	L9	L8	L7
<	0.04 <	0.04 <	0.04
	L12	L11	L10
<	0.04 <	0.04 <	0.04
	<	0.04	
	L15	L14	L13
<	0.04 <	0.04 <	0.04
	L18	L17	L16
<	0.04 <	0.04 <	0.04

C-2

TEST: ORGANICS # 3
DATE: 09/20/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW AFB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

:: ::

GRID CHART 9 - n-BUTANOL
n-BUTYL ALCOHOL (mg/M3)

	R1	R2	R3
<	0.050 <	0.047	0.116
	R4	R5	R6
<	0.050 <	0.046 <	0.050
	R7	R8	R9
<	0.048 <	no sample <	0.048
		<	0.049
	R10	R11	R12
<	0.048 <	0.050 <	0.048
	R13	R14	R15
<	0.041 <	0.049 <	no sample
	R16	R17	R18
<	0.048 <	0.048 <	0.050

Painter 1	
<	0.053
Painter 2	
<	0.050

North Stack	
<	0.057
South Stack	
<	0.056
Blank (ug/tube)	
	2.000

Blank (ug/tube)	
<	2.0
<	2.0

	L3	L2	L1
	0.221 <	0.050 <	0.052
	L6	L5	L4
	0.236	0.255	0.210
<	0.048		
	L9	L8	L7
<	0.048 <	0.050	0.317
	L12	L11	L10
<	0.048 <	0.070 <	no sample
	<	0.051	
	L15	L14	L13
	0.327 <	0.051 <	0.049
	L18	L17	L16
<	0.050 <	0.049 <	0.049

C.2

TEST: ORGANICS # 1
DATE: 09/17/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

TOTAL ORGANICS (mg/m^3)

R1 33	R2 27	R3 20
R4 164	R5 154	R6 107
R7 96	R8 216	R9 183, 161
R10 302	R11 306	R12 230
R13 369	R14 335	R15 267
R16 174	R17 211	R18 138

Painter 1 655
Painter 2 417

North Stack 155
South Stack 106

Blank (ug/tube) N/A N/A

L3 38	L2 41	L1 68
L6 no sample, 133	L5 147	L4 285
L9 160	L8 237	L7 no sample
L12 250	L11 354, 409	L10 343
L15 394	L14 398	L13 419
L18 350	L17 no sample	L16 468

C.2

TEST: ORGANICS # 2
DATE: 09/20/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

TOTAL ORGANICS (mg/M3)

R1 116.9	R2 12.0	R3 11.4
R4 118.5	R5 90.6	R6 60.7
R7 152.2	R8 no sample	R9 116.5 120.6
R10 164.2	R11 185.9	R12 162.6
R13 202.1	R14 206.1	R15 45.7
R16 194.7	R17 36.7	R18 129.3

Painter 1 627.9
Painter 2 503.7

North Stack 186.1 174.5
South Stack 108.2

Blank (ug/tube) 23 16

L3 29.0	L2 34.5	L1 64.9
L6 191.2 161.6	L5 195.2	L4 188.2
L9 237.1	L8 291.4	L7 346.5
L12 295.9	L11 371.5 355.0	L10 401.0
L15 340.2	L14 406.8	L13 436.9
L18 275.5	L17 321.8	L16 363.7

C.2

TEST:	ORGANICS # 3	BARSTOW AFB		D E Initials:	ljl
DATE:	09/20/93 PM	BOOTH 1 TESTS		Q A Initials:	du
METHOD:	MOD. NIOSH 1300	ACUREX PROJECT 8517		Print Date:	04/04/94

:: ::

TOTAL ORGANICS (mg/M3)

R1	R2	R3
19	18	14
R4	R5	R6
142	118	111
R7	R8	R9
196	no sample	165
		195
R10	R11	R12
252	237	201
R13	R14	R15
251	283	no sample
R16	R17	R18
179	1	141

Painter 1
488
Painter 2
475
North Stack
40
South Stack
116
Blank (ug/tube)
13
Blank (ug/tube)
14
15

L3	L2	L1
38	43	61
L6	L5	L4
36	162	364
164		
L9	L8	L7
264	290	315
L12	L11	L10
1	386	no sample
	380	
L15	L14	L13
413	249	438
L18	L17	L16
359	437	470

C.2

TEST: ORGANICS # 1
DATE: 09/17/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

BOOTH Temperature: 73 P Barr: 29.91

GRID LOC	TUBE SET NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	MEK (ug)	ETHYL BENZENE (ug)	XYLENES (ug)	PGME ACETATE (ug)	BUTYL ACETATE (ug)	MIAK (ug)	TOLUENE (ug)	HEXYL ACETATE (ug)	n-BUTYL ALCOHOL (ug)	TOTAL ORGANICS (ug)
L3	114	40	42	971	992.6	930349&50	64.0	26.7	92.4	7.9	78.6	1180	23.9	<	2	1476
L2	64	40	29	1012	995	930347&48	77.9	38.1	133	11.2	113	1240	30.9	<	2	1646
L1	52	40	37	981	951	930345&46	110	3.6	207	17.0	174	2050	45.8	<	2	2609
L6	123	0	16	998	999.9	930355&56	< 2	< 1	8.2	< 1	1.1	4.1	1.2	<	2	21
L5	122	40	28	993.1	1004	930353&54	137	< 1	553	38.0	422	4600	77.4		2.1	5831
L4	75	40	26	1007	1016	930351&52	324	225	839	57.5	717	9120	140		4.4	11427
L9	67	40	4	998	1030	930361&62	136	13.9	601	40.8	458	5090	81	<	2	6423
L8	113	40	1	1039	1025	930359&60	245	25.7	898	58.7	700	7610	131	<	2	9670
L7	112	0	9	999.7	963.2	930357&58	281	17.7	1010	63.0	797	8590	153	<	2	10914
L12	69	40	24	983	1030	930367&68	222	229	910	58.7	702	7730	125	<	2	9979
L11	60	40	27	1000	997	930365&66	332	320	1250	105	993	10800	187		8.4	13995
L10	58	40	10	964	956.5	930363&64	346	26.5	1220	12.7	965	10300	185	<	2	13057
L15	74	40	43	1021	1050	930373&74	403	315	1170	< 1	995	13100	182		5.9	16172
L14	68	40	38	1010	981.4	930371&72	390	368	1430	80.4	1120	12100	214	<	2	15704
L13	51	40	33	1024	988	930369&70	417	385	1491	77.0	1190	12900	229	<	2	16691
L18	117	40	3	984	986.9	930379&80	343	264	993	61.8	830	11000	152		5.0	13649
L17	115	0	35	975	983.9	930377&78	< 2	< 1	17.5	< 1	< 1	12.3	< 1	<	2	38
L16	61	40	34	998	1041	930375&76	495	362	1360	< 1	1160	15300	211		6.7	18896
PAINTER 1	28	34	18	978	974	930388&89	691	537	2030	106	1680	16100	370	<	2	21516
PAINTER 2	26	34	36	997	1036	930390&91	521	350	1330	87.4	1120	10600	267	<	2	14277
L6 Dup	55	40	7	987	998	930383&02	144	115	398	< 1	331	4160	69.5		2.2	5221
L11 Dup	30	40	31	1018	1030	930384&85	462	351	1210	< 1	1050	13300	205		6.8	16586
R1	29	41	5	1007	1000	930310&11	82.6	30.7	114	9.3	101	962	34.7	<	2	1336
R2	124	41	40	1033	1058	930312&13	61.0	26.8	100	6.8	87.8	826	28.0	<	2	1138
R3	31	41	14	1008	986	930314&15	45.1	15.8	69.7	5.0	62.3	585	16.9	<	2	802
R4	118	41	32	987	987	930316&17	296	133	498	32.8	435	5040	115		3.4	6553
R5	27	41	19	1025	997	930318&19	280	128	477	42.1	423	4850	111	<	2	6313
R6	63	41	15	950	1029	930320&21	181	90.4	337	26.2	288	3280	74.8		2.5	4280
R7	66	41	2	983	982	930322&23	152	82.8	306	26.6	263	2920	66.6	<	2	3819
R8	62	41	22	1001	954	930324&25	348	171	646	49.2	553	6680	136	<	2	8585
R9	121	41	30	1004	1000	930326&27	299	150	567	47.9	490	5750	123		3.1	7430
R10	125	41	23	1030	1048	930328&29	429	250	943	56.2	800	10100	175		5.5	12759
R11	34	41	45	1014	1054	930329&30	441	267	938	< 1	814	10200	160		4.8	12846
R12	70	41	46	1003	1026	930331&32	362	201	698	41.1	617	7400	147		3.5	9470
R13	72	41	47	994	1021	930333&34	450	312	1090	< 1	941	12100	198		5.3	15097
R14	57	41	6	966	970	930335&36	426	275	961	< 1	836	10500	181		4.7	13185
R15	56	41	17	1001	970	930337&38	369	14.6	796	52.8	684	8590	156		3.3	10666
R16	120	41	48	1014	1014	930339&40	238	10.0	537	40.5	460	5760	102		3.0	7151
R17	73	41	39	1041	980	930341&42	282	171	639	43.5	550	6850	127		3.1	8666
R18	119	41	20	961	1019	930343&44	188	7.6	424	31.5	363	4450	85.7		2.1	5552
NORTH STK	111	35	25	1018	986	930392&93	113	122	494	40.0	384	4150	66.1	<	2	5371
SOUTH STK	71	35	41	1018	990	930394&95	105	81.6	342	27.4	277	2790	59.8	<	2	3685
R9 Dup	54	41	8	997	1041	930386&87	285	134	509	35.8	443	5130	111		3.1	6651
BLANK 1	65	40	NA	1000	1000	930382&81	< 2	< 1	17.1	< 1	< 1	< 1	1	<	2	26
BLANK 2	59	41	NA	1000	1000	930105&06	< 2	< 1	9.9	< 1	< 1	< 1	1	<	2	19

C.2

TEST: ORGANICS # 2
DATE: 09/20/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

BOOTH Temperature: 69 P Barr: 29.87

GRID LOC	TUBE SET NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	MEK (ug)	ETHYL BENZENE (ug)	XYLENES (ug)	PGME ACETATE (ug)	BUTYL ACETATE (ug)	MIAK (ug)	TOLUENE (ug)	HEXYL ACETATE (ug)	n-BUTYL ALCOHOL (ug)	TOTAL ORGANICS (ug)
L3	82	53	46	1019	1039	930148&47	117	35.5	129	16.6	115	1100	43.5	16.3 <	2	1575
L2	85	53	48	1007	1049	930146&45	126	41.8	154 <	1	140	1340	49.4	20.7 <	2	1875
L1	88	52	43	992	1037	930144&43	184	72.8	271	27.5	233	2550	69.0		2.3	3410
L6	95	53	25	984	989	930154&53	367	191	819 <	1	596	7760	128	95.2 <	2	9959
L5	48	53	31	1010	1050	930152&51	347	216	821	74.4	704	8310	141	<	2	10615
L4	37	52	5	986	1005	930150&49	322	195	745	73.6	611	7530	129	100 <	2	9708
L9	92	53	39	1011	1031	930160&59	363	254	959	61.2	793	10200	155	<	2	12787
L8	35	52	30	987	995	930158&57	441	301	1130	71.4	937	11900	183	<	2	14965
L7	45	52	1	1011	1026	930156&55	547	363	1360	78.3	1130	14400	220	188 <	2	18288
L12	32	53	34	982	1020	930166&65	429	309	1170	84.3	966	12500	182	<	2	15642
L11	98	53	42	1002	1034	930164&63	554	396	1480	71.1	1230	15800	230	208 <	2	19971
L10	41	52	7	984	1003	930162&61	582	405	1530 <	1	1260	16400	234	231 <	2	20645
L15	81	53	14	991	994	930172&71	477	353	1330	75.8	1090	14300	203	<	2	17831
L14	44	52	33	1009	1058	930170&69	591	433	1350	290	1340	17300	245	235 <	2	21786
L13	39	52	22	970	994	930168&67	586	443	1680 <	1	1370	17900	248	<	2	22230
L18	43	53	19	998	990	930178&77	383	283	1070	72.3	875	11400	162	215 <	2	14462
L17	97	53	23	1025	1042	930176&75	453	345	1310	75.4	1070	13900	193	215 <	2	17563
L16	86	52	38	976	988	930174&73	471	362	1370	77.7	1130	14700	202	193 <	2	18508
PAINTER 1	99	52	37	977	1004	930188&87	772	65.8	2960 <	1	2390	25300	427	289	20.2	32225
PAINTER 2	96	52	44	1013	960	930190&89	668	605	2270	26.2	1870	19700	343	261 <	2	25745
L6 Dup	33	53	29	995	1014	930181&82	269	174	655	54.5	542	6760	114	<	2	8571
L11 Dup	94	53	4	970	1002	930184&83	515	364	1370	85.9	1140	14600	215	196 <	2	18488
R1	151	53	18	993	1006	930107&08	90.3	10.7	49.2	4.0	45.1	382	26.4	<	2	6170
R2	77	53	27	982	994	930110&09	74.7	11.3	51.3	4.0	45.4	415	23.8	<	2	628
R3	154	53	17	992	1022	930111&12	62.8	11.3	51.2	4.1	45.6	408	23.4	<	2	608
R4	153	52	20	999	1010	930114&13	377	120	455	34.3	388	4680	113		2.6	6170
R5	100	52	24	988	1024	930116&15	288	93.1	351	24.2	298	3580	86.6	<	2	4723
R6	155	53	15	976	988	930118&17	174	68.2	48.7	18.6	216	2560	59.4	<	2	3147
R7	40	53	9	1018	1013	930120&19	469	164	620	44.1	526	6120	144	73.6 <	2	8163
R8	159	0	36	1002	993	930122&21	433	151	572	40.5	483	5670	129	65.3 <	2	7546
R9	152	52	6	1007	990	930124&23	320	124	467	36.6	390	4590	100	<	2	6030
R10	79	53	28	978	979	930126&25	425	171	645	46.4	544	6440	138	75.4 <	2	8487
R11	47	52	35	973	976	930128&27	371	33.8	858	55.6	675	7230	161	<	2	9386
R12	76	53	45	1021	1009	930130&29	432	176	679	46.5	560	6680	140	<	2	8716
R13	84	53	40	985	1021	930132&31	456	216	814	53.8	677	8330	156	<	2	10705
R14	46	53	32	985	1020	930134&33	472	220	835	57.1	694	8460	161		12.3	10911
R15	160	53	3	1007	1011	930136&35	435	194	743	70.0	618	160	146		71.3	2437
R16	80	53	2	982	983	930138&37	357	205	771	51.9	638	7940	136	<	2	10101
R17	91	52	41	1000	1012	930140&39	315	164	613	54.2	517	130	115		4.4	1913
R18	42	53	47	1021	1039	930142&41	277	142	537	40.7	442	5400	101	90.2	3.5	7033
SOUTH STK	83	49	16	971	958	930415&16	189	112	454	32.4	364	3860	82.0	<	2	5095
NORTH STK	49	49	10	964	970	930396&97	196	202	811	48.8	611	6800	113		4.2	8786
R9 Dup	36	52	26	997.8	1020	930186&85	341	129	482	65.7	418	4760	107.8	<	2	6306
Nrth Stk Dup	87	49	8	985	968	930417&18	188	187	741	51.7	581	6460	109	<	2	8320
L BLANK	78	0	NA	0	0	930180&79 <	2 <	1	13.0 <	1 <	1 <	1 <	1 <	1 <	2	23
R BLANK	50	0	NA	0	0	930019&20 <	2 <	1	5.2 <	1 <	1 <	1 <	1	1.3 <	2	16

C.2

TEST: ORGANICS # 3
DATE: 09/20/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

BOOTH Temperature: 72 P Barr: 29.87

GRID LOC	TUBE SET NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	MEK (ug)	ETHYL BENZENE (ug)	XYLENES (ug)	PGME ACETATE (ug)	BUTYL ACETATE (ug)	MIAK (ug)	TOLUENE (ug)	HEXYL ACETATE (ug)	n-BUTYL ALCOHOL (ug)	TOTAL ORGANICS (ug)
L3	175	40	6	990	1017	930061&62	80.7	35.6	135 <	1	110	1100	38.3	13.5	8.8	1522.9
L2	162	40	3	1011	1014	930059&60	95.0	36.5	134 <	1	116	1280	40.1	15.1 <	2	1719.7
L1	140	40	35	976	970	930057&58	121	50.6	183 <	1	156	1760	52.6	22.8 <	2	2349
L6	156	40	36	993	1056	930067&68	213	136	504 <	1	409	31.6	97.8	70.4	9.6	1472.4
L5	163	40	39	1031	1028	930065&66	264	153	560 <	1	464	4960	116	78.0	10.4	6606.4
L4	137	40	42	1034	1031	930063&64	534	348	1260 <	1	1030	11300	232	199	8.6	14912.6
L9	148	40	23	1042	1060	930073&74	323	213	786	68.0	628	8700	146	131 <	2	10997
L8	149	40	5	1005	994	930071&72	363	225	819	67.4	671	9050	161	144 <	2	11502.4
L7	161	41	8	968	1038	930069&70	431	253	745	74.7	755	10200	183	167	12.9	12821.6
L12	130	40	33	1058	1055	930079&80 <	2 <	1	4.8 <	1 <	1	4.3	1.4	22.8 <	2	40.3
L11	166	29	7	1003	980	930077&78	305	218	789	65.8	640	8730	136	108 <	2	10993.8
L10	139	0	29	1014	1022	930075&76	512	318	1158 <	1	943	13000	217	199 <	2	16350
L15	173	40	47	1039	1060	930085&86	531	330	1190 <	1	984	13700	221	196	13.6	17166.6
L14	137	40	19	990	970	930083&84	352	187	688	63.9	569	7560	146	107 <	2	9674.9
L13	169	41	15	988	1015	930081&82	552	345	1270 <	1	1030	14200	231	209 <	2	17840
L18	157	40	18	1006	1008	930091&92	397	278	1010	76.4	824	11400	182	160 <	2	14329.4
L17	38	40	32	1020	1027	930089&90	520	341	1240 <	1	1010	14200	222	205 <	2	17741
L16	136	40	24	1024	1030	930087&88	558	363	1350 <	1	1090	15300	233	221 <	2	19118
PAINTER 1	143	40	44	960	956	930097&98	739	372	1338 <	1	1160	14400	288	242 <	2	18542
PAINTER 2	141	40	37	1004	997	930099&100	688	460	1620 <	1	1370	14100	294	295 <	2	18830
L6 Dup	129	40	31	1050	1051	930191&92	232	131	478 <	1	397	5410	100	57.6 <	2	6808.6
L11 Dup	168	40	28	980	990	930193&94	468	290	1057 <	1	871	11800	201	149 <	2	14839
R1	171	41	2	983	985	930021&22	63.3	15.7	59.0 <	1	50.3	533	30.6	12.1 <	2	767
R2	172	41	40	1021	1058	930023&24	56.4	15.4	58.1 <	1	48.5	541	27.1	11.0 <	2	760.5
R3	127	41	43	1037	1043	930025&26	39.4	11.6	43.6 <	1	36.3	406	21.2	8.0	4.9	572
R4	133	41	27	993	987	930027&28	300	121	495	38.9	372	4200	110	70.1 <	2	5709
R5	167	41	9	1113	1029	930029&30	166	111	407	36.0	341	3890	100	66.8 <	2	5119.8
R6	131	41	14	994	992	930031&32	196	95.1	350	33.4	292	3370	83.0	52.5 <	2	4474
R7	89	41	41	1012	1058	930033&34	379	175	639	51.4	515	6240	143	107 <	2	8251.4
R8	158	0	25	988	998	930035&36 <	2 <	1	1.3 <	1 <	1	32.8 <	1 <	1 <	2	43.1
R9	90	41	45	1009	1039	930037&38	314	147	537	46.5	449	5180	123	82.7 <	2	6881.2
R10	142	42	26	1020	998	930039&40	409	224	816	61.4	671	8110	162	129 <	2	10584.4
R11	165	41	38	988	988	930041&42	379	201	730	59.2	606	7290	148	114 <	2	9529.2
R12	138	41	17	1022	1021	930043&44	356	176	645	56.2	531	6320	136	99.7 <	2	8321.9
R13	146	48	48	1049	981	930045&46	441	255	942 <	1	764	9390	183	153 <	2	12131
R14	144	40	20	1010	1035	930047&48	398	224	811	61.9	673	9000	159	136 <	2	11464.9
R15	147	0	30	995	978	930049&50 <	2 <	1	1.4 <	1 <	1	33.5 <	1 <	1 <	2	43.9
R16	164	41	1	1026	1030	930051&52	278	159	581	52.1	479	5721	117	90.1 <	2	7479.2
R17	170	41	34	1020	1051	930053&54 <	2 <	1 <	1 <	1 <	1	32 <	1 <	1 <	2	42
R18	128	41	22	994	975	930055&56	213	120	439	41.4	364	4290	91.5	67.4 <	2	5628.3
NORTH STK	126	37	16	971	958	930197&98	180	126	463 <	1	374	132	86.1	61.3 <	2	1425.4
SOUTH STK	135	37	10	964	970	930199&200	170	95.7	355 <	1	290	3080	72.2	44.4 <	2	4110.3
R9 Dup	134	41	4	1002	993	930195&96	337	154	575 <	1	481	6140	132	90.0 <	2	7912
L BLANK	145	0	N/A	0	0	930093&94 <	2 <	1	4 <	1 <	1 <	1 <	1 <	1 <	2	14
R BLANK	93	0	N/A	0	0	930095&96 <	2 <	1	5 <	1 <	1 <	1 <	1 <	1 <	2	15
Stack Blank	174	0	N/A	0	0	930201&02 <	2 <	1	2.7 <	1 <	1 <	1 <	1 <	1 <	2	12.7

NIOSH 1300 ORGANICS STACK CONCENTRATIONS

Test/Stack	Tube #	Spl Time (min)	Pump#	Pre-Cal (ml/min)	Post-Cal (ml/min)	Temp (deg F)	B Press (mm Hg)	Acurex Spl #	MEK (ug)	ETHYL BENZENE (ug)	XYLENES (ug)	PMGE ACETATE (ug)	BUTYL ACETATE (ug)	MIAK (ug)	TOLUENE (ug)	HEXYL ACETATE (ug)	n-BUTYL ALCOHOL (ug)	TOTAL ORGANICS (ug)
BOOTH 1																		
P1/N	102	72	2	1037	1053	71	30.00	93000I&2	174	187	629 <	1	473	6010	73.7	67.2 <	2	7616.9
P1/S	105	72	1	1010	1033	71	30.00	93000J&4	94.0	51.8	167	18.7	131	1450	32.3	28.9 <	2	1975.7
P2/N	104	33	2	1053	1027	80	30.00	93000K&8	62.2	80.6	261	29.4	198	2580	32.1	31.3 <	2	3276.6
P2/S	103	56	1	1033	989	80	30.00	93000L&6	162	120	400	42.9	306	4060	61.0	61.3 <	2	5215.2
P3/N	20	38	25	990	1022	70	29.81	93030M&7	153	125	445 <	1	362	3620	78.7	83.9 <	2	4870.6
P3/S	19	39	37	1071	1098	70	29.81	93030N&9	216	126	457	39.6	391	4470	109	138	2.6	5949.2
ISO1/N	109	65	3	988	986	70	29.95	93040I&2	143	122	418 <	1	312	4130	53.7	53.1 <	2	5234.8
ISO1/S	108	65	1	1016	1017	70	29.95	93040J&8	119	73.9	254 <	1	194	2410	41.8	37.2 <	2	3132.9
ISO1/NDUP	107	65	4	1017	1087	70	29.95	93040K&4	202	209	716 <	1	534	7180	84.6	83.8 <	2	9012.4
ISO2/N	1	52	3	986	963	83	29.95	93001L&2	162	157	536	62.2	410	5280	74.6	70.6 <	2	6754.4
ISO2/S	2	53	1	1017	1035	83	29.95	930009&10	106	93.9	324	39.2	256	3300	48.4	30.0 <	2	4199.5
ISO2/Blank	4					83	29.95	93040S&6 <	2 <	1	1.1 <	1 <	1	1.8 <	1 <	1 <	2	11.9
ISO3/N	7	47	4	1087	1056	83	29.95	930018&16	200	192	675	59.6	522	7020	88.8	65.1 <	2	8824.5
ISO3/S	6	47	1	1035	1021	83	29.95	930014&17	74.1	55.1	195	20.1	151	1980	28.7	17.7 <	2	2523.7
ISO3/SDUP	5	47	3	963	932	83	29.95	930015&13	70.3	52.4	185	19.8	142	1900	26.9	17.1 <	2	2415.5
M1/N	10	78	11	996	981	65	29.81	930400&30	19.9	1.9	11.6 <	1	5.1	8.7	253	3.2	556	860.4
M1/S	9	78	37	1057	1079	65	29.81	930303&4	28.4	2.3	8.1 <	1	7.2	8.9	284	2.9	591	933.8
M1/Blank	8					65	29.81	930305&39 <	2 <	1	4.3 <	1 <	1 <	1 <	1 <	1 <	2	14.3
M2/N	15	47	25	1028	990	77	29.81	930411&12	148	125	450	49.3	350	3670	80.1	70.7 <	2	4945.1
M2/S	13	47	37	1079	1071	77	29.81	930409&10	217	131	476	42.6	391	4930	106	103	2.9	6399.5
M2/NDUP	14	47	11	981	962	77	29.81	939413&14	147	121	431	39.1	346	4580	80.3	69.2	2.4	5816
M3/N	116	61	25	1012	1018	66	29.91	93010I&2	19.2	1.9	7.9 <	1	3.6	9.4	337	1.4	651	1032.4
M3/S	106	60	41	990	1001	66	29.91	93010J&4	14.8	1.4	5.9 <	1	3.8	8.9	209	4.0	389	637.8
ORG1/N	111	35	25	1018	986	73	29.91	93039K&3	113	122	494	40.0	384	4150	66.1	NA <	2	5371.1
ORG1/S	71	35	41	1018	990	73	29.91	93039L&5	105	81.6	342	27.4	277	2790	59.8	NA <	2	3684.8
ORG2/N	49	49	10	964	970	69	29.87	93039M&7	196	202	811	48.8	611	6800	113	NA	4.2	8786
ORG2/S	83	49	16	971	958	69	29.87	93041N&6	189	112	454	32.4	364	3860	82.0	NA <	2	5095.4
ORG3/N	126	37	16	971	958	72	29.87	93019I&8	180	126	463 <	1	374	132	86.1	61.3 <	2	1425.4
ORG3/S	135	37	10	964	970	72	29.87	93019J&20(	170	95.7	355 <	1	290	3080	72.2	44.4 <	2	4110.3
AREA 11																		
P1/N	268	28	28	1024	1065	73	29.97	931117&18	163	21.2	79.2 <	1	72.1	717	39.0	12.7 <	2	1107.2
P1/S	267	28	27	993	960	73	29.97	931119&20	96.7	4.3	20.0 <	1	13.3	132	98.6	7.7	110	483.6
P2/N	270	27	28	1065	1081	78	29.97	931122&24	86.4	5.3	25.4 <	1	15.3	178	177	3.8	204	696.2
P2/S	269	27	27	960	927	78	29.97	931125&23	213	42.7	157 <	1	146	1470	76.5	34.1 <	2	2142.3
ORG1/N	24	34	26	1018	977	78	29.92	930244&45	175	5.5	137 <	1	166	948	93.1	75.0 <	2	1602.6
ORG1/S	261	35	25	1017	959	78	29.92	930246&47	62.8	8.6	39 <	1	19.6	216	120	52.7	121	640.7
ORG2/N	177	38	28	995	955	89	29.92	930294&95 <	2	31.1	54.5 <	1	175	1110	118	89.9	3.4	1584.9
ORG2/S	189	38	27	970	944	89	29.92	930296&97	225 <	1	25.0 <	1	17.8	136	170 <	40.9	183	799.7

NOTE: ALL ORGANIC MASS RESULTS ARE CORRECTED WITH DESORPTION EFFICIENCY STUDY RESULTS

C-2

C.2

TEST: ORGANICS # 1
DATE: 09/22/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8

METHYL ETHYL KETONE (mg/m^3)

G1 1.0	G2 1.7	G3 1.2
G4 3.7	G5 9.7	G6 5.5, 6.5
G7 11.9	G8 20.1	G9 16.3
G10 22.0	G11 33.4, 36.2	G12 32.3
G13 28.9	G14 36.9	G15 26.6
G16 121.4	G17 40.6	G18 26.4

Painter 1 6.6

Painter 2 no sample

North Stack 5.3

South Stack 1.9

Blank < 2.0

C-2

TEST: ORGANICS #2
DATE: 09/22/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8

METHYL ETHYL KETONE (mg/m^3)

G1	G2	G3
5.45 <	0.05 <	no sample
G4	G5	G6
< no sample	4.78	4.16
		3.32
G7	G8	G9
6.00	no sample <	no sample
G10	G11	G12
6.46	5.93	5.70
	6.23	
G13	G14	G15
5.60	5.82	6.23
G16	G17	G18
6.71	6.38	6.84

2.75	Painter 1 < 0.05
4.47	Painter 2 4.23
6.00	North Stack < 0.06
6.13	South Stack 6.43
5.88	
6.64	Blank no sample

TEST: ORGANICS # 1
DATE: 09/22/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT &

ETHYL BENZENE (mg/m^3)

G1 0.29	G2 0.44	G3 0.34
G4 0.69	G5 1.74	G6 0.91, 1.08
G7 2.16	G8 3.78	G9 3.23
G10 3.94	G11 6.05, 5.02	G12 6.76
G13 4.58	G14 5.98	G15 4.89
G16 5.84	G17 3.00	G18 2.07

Painter 1 0.76

Painter 2 no sample

North Stack 0.17

South Stack 0.25

Blank < 1.0

TEST:	ORGANICS #2	BARSTOW MCLB
DATE:	09/22/93 PM	AREA 11 TESTS
METHOD:	MOD. NIOSH 1300	ACUREX PROJECT 8

ETHYL BENZENE (mg/m^3)

G1	G2	G3		Painter 1
0.067 <	0.026 <	no sample	0.047	< 0.027
G4	G5	G6		Painter 2
< no sample	0.073	0.077	0.075	0.043
		0.064		
G7	G8	G9		
0.072	no sample <	no sample	0.072	
				North Stack
				0.873
G10	G11	G12		
0.074	0.079	0.065	0.074	
	0.081			South Stack
				< 0.029
G13	G14	G15		
0.058 <	0.026	0.073	0.052	
G16	G17	G18		Blank
0.081	0.064	0.065	0.070	no sample

TEST: ORGANICS # 1
DATE: 09/22/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT &

XYLENES (mg/m^3)

G1 0.7	G2 1.2	G3 0.8
G4 2.5	G5 7.1	G6 4.1, 4.1
G7 8.7	G8 14.5	G9 12.7
G10 15.3	G11 23.0, 18.8	G12 26.1
G13 18.1	G14 20.0	G15 19.1
G16 28.9	G17 11.8	G18 8.1

Painter 1: 2.9

Painter 2: no sample

North Stack: 4.1

South Stack: 1.1

Blank: 8.4

C-2

TEST: ORGANICS #2 BARSTOW MCLB
DATE: 09/22/93 PM AREA 11 TESTS
METHOD: MOD. NIOSH 1300 ACUREX PROJECT 8

XYLENES (mg/m^3)

G1 0.38	G2 0.04	G3 no sample	0.21	Painter 1 < 0.03
G4 no sample	G5 0.41	G6 0.46, 0.42	0.44	Painter 2 0.22
G7 0.40	G8 no sample	G9 no sample	0.40	North Stack 1.53
G10 0.43	G11 0.43, 0.45	G12 0.35	0.41	South Stack 0.71
G13 0.33	G14 0.43	G15 0.39	0.38	
G16 0.47	G17 0.40	G18 0.37	0.41	Blank no sample

C-2

TEST: ORGANICS # 1
DATE: 09/22/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8

PROPYLENE GLYCOL METHYL ETHER ACETATE

(mg/m^3)

G1 < 0.03	G2 < 0.03	G3 0.03
G4 < 0.03	G5 0.31	G6 0.30
	<	0.03
G7 0.39	G8 0.77	G9 0.63
G10 0.80	G11 1.17	G12 1.37
	1.28	
G13 1.01	G14 1.14	G15 1.02
G16 < 0.23	G17 < 0.03	G18 0.03

Painter 1	
<	0.03
Painter 2	
no sample	

North Stack	
<	0.03
South Stack	
<	0.03

Blank	
<	1.0

TEST: ORGANICS #2 BARSTOW MCLB
DATE: 09/22/93 PM AREA 11.TESTS
METHOD: MOD. NIOSH 1300 ACUREX PROJECT 8

PROPYLENE GLYCOL METHYL ETHER ACETATE
(mg/m^3)

G1 < 0.026	G2 < 0.026	G3 < no sample	0.026	Painter 1 < 0.027	
G4 < no sample	G5 < 0.026	G6 < 0.027 < 0.053	0.040	Painter 2 < 0.027	
G7 < 0.027	G8 no sample	G9 < no sample	0.027	North Stack < 0.028	
G10 < 0.027	G11 < 0.027 < 0.026	G12 < 0.027	0.027	South Stack < 0.029	
G13 < 0.027	G14 < 0.026	G15 < 0.027	0.027		
G16 0.111	G17 < 0.028	G18 < 0.026	0.055	Blank no sample	

C 2-

TEST: ORGANICS # 1
DATE: 09/22/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8

BUTYL ACETATE (mg/m^3)

G1 0.7	G2 1.3	G3 0.8
G4 3.0	G5 8.3	G6 4.7, 4.4
G7 10.1	G8 16.9	G9 14.5
G10 17.6	G11 26.3, 21.4	G12 29.6
G13 20.6	G14 21.9	G15 19.2
G16 56.8	G17 15.3	G18 10.3

Painter 1 3.8

Painter 2 no sample

North Stack 5.0

South Stack 0.6

Blank < 1.0

C.2

TEST: ORGANICS #2 BARSTOW MCLB
DATE: 09/22/93 PM AREA 11 TESTS
METHOD: MOD. NIOSH 1300 ACUREX PROJECT 8

BUTYL ACETATE (mg/m^3)

G1 0.28 <	G2 0.03 <	G3 no sample
G4 < no sample	G5 0.27	G6 0.33, 0.25
G7 0.37	G8 no sample <	G9 no sample
G10 0.44	G11 0.50, 0.46	G12 0.27
G13 0.29	G14 0.37	G15 0.38
G16 0.45	G17 0.40	G18 0.37

0.15	Painter 1 < 0.03
0.30	Painter 2 0.16
0.37	North Stack 4.91
0.40	South Stack 0.51
0.35	
0.41	Blank no sample

TEST: ORGANICS # 1
DATE: 09/22/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8

METHYL ISO-AMYL KETONE (mg/m^3)

G1 7.1	G2 10.1	G3 8.0
G4 17.7	G5 51.0	G6 31.0 29.8
G7 64.7	G8 104.1	G9 89.6
G10 110.6	G11 166.4 152.0	G12 187.1
G13 139.1	G14 174.6	G15 139.9
G16 77.7	G17 76.2	G18 51.7

Painter 1 18.9

Painter 2 no sample

North Stack 28.5

South Stack 6.4

Blank < 1.0

TEST: ORGANICS #2 BARSTOW MCLB
DATE: 09/22/93 PM AREA 11 TESTS
METHOD: MOD. NIOSH 1300 ACUREX PROJECT 8

METHYL ISO-AMYL KETONE (mg/m^3)

G1	G2	G3		Painter 1
1.41 <	0.03 <	no sample	0.72	< 0.03
G4	G5	G6		Painter 2
< no sample	1.94	3.04	2.49	1.21
		2.50		
G7	G8	G9		
2.06	no sample <	no sample	2.06	North Stack
				31.15
G10	G11	G12		
2.09	2.07	1.86	2.03	
	2.14			South Stack
				3.89
G13	G14	G15		
1.63	1.86	1.97	1.82	
G16	G17	G18		
1.81	1.85	1.77	1.81	Blank
				no sample

TEST: ORGANICS # 1
DATE: 09/22/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8

TOLUENE (mg/m^3)

G1 0.4	G2 0.7	G3 0.6
G4 1.8	G5 4.7	G6 2.7, 2.6
G7 6.0	G8 9.8	G9 8.4
G10 10.5	G11 15.1, 12.2	G12 16.6
G13 11.7	G14 14.3	G15 12.0
G16 49.6	G17 9.7	G18 6.8

Painter 1 2.5

Painter 2 no sample

North Stack 2.8

South Stack 3.5

Blank < 1.0

TEST: ORGANICS #2 BARSTOW MCLB
DATE: 09/22/93 PM AREA 11 TESTS
METHOD: MOD. NIOSH 1300 ACUREX PROJECT 8

TOLUENE (mg/m^3)

G1	G2	G3		Painter 1
8.49 <	0.03	no sample	4.26	< 0.03
G4	G5	G6		Painter 2
no sample	7.18	3.12	5.65	3.31
		4.12		
G7	G8	G9		
15.99	no sample	no sample	15.99	North Stack
				3.31
G10	G11	G12		
19.33	26.35	17.16	21.45	
	27.86			South Stack
				4.86
G13	G14	G15		
17.93	29.23	19.38	22.18	
G16	G17	G18		
22.70	26.05	17.90	22.22	Blank
				no sample

TEST: ORGANICS # 1
DATE: 09/22/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8

HEXYL ACETATE (mg/m^3)

G1	G2	G3 0.25
G4	G5 3.63	G6 2.89 2.43
G7 7.07	G8 8.99	G9 7.45
G10 10.87	G11 16.20 12.28	G12 16.54
G13 15.84	G14 20.57	G15 14.47
G16 47.05	G17 13.68	G18 8.67

Painter 1
ND

Painter 2
no sample

North Stack
ND

South Stack
ND

Blank
< 1.0

TEST: ORGANICS #2
DATE: 09/22/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT &

HEXYL ACETATE (mg/m^3)

G1	G2	G3		Painter 1
0.073 <	0.026 <	no sample	0.049	< 0.027
G4	G5	G6		Painter 2
< no sample	0.094	0.213	0.153	< MDL
	<	0.053		
G7	G8	G9		
0.117	no sample <	no sample	0.117	
				North Stack
				2.806
G10	G11	G12		
0.112	0.095	0.027	0.080	
	0.100			South Stack
				< MDL
G13	G14	G15		
0.038	0.066	0.127	0.077	
G16	G17	G18		Blank
0.116	0.137	0.124	0.126	no sample

TEST: ORGANICS # 1 BARSTOW MCLB
DATE: 09/22/93 AM AREA 11 TESTS
METHOD: MOD. NIOSH 1300 ACUREX PROJECT 8

n-BUTYL ALCOHOL (mg/m^3)

G1 < 0.05	G2 < 0.05	G3 < 0.06
G4 < 0.06	G5 < 0.05	G6 < 0.05 < 0.06
G7 < 0.06	G8 < 0.06	G9 < 0.05
G10 < 0.05	G11 < 0.05 < 0.09	G12 < 0.06
G13 < 0.05	G14 < 0.05	G15 < 0.06
G16 < 0.45	G17 < 0.05	G18 < 0.06

Painter 1
< 0.06

Painter 2
no sample

North Stack
< 0.06

South Stack
3.57

Blank
< 2.0

C.2-

TEST: ORGANICS #2 BARSTOW MCLB
DATE: 09/22/93 PM AREA 11 TESTS
METHOD: MOD. NIOSH 1300 ACUREX PROJECT 8

n-BUTYL ALCOHOL (mg/m^3)

G1	G2	G3
10.8 <	0.1 <	no sample
G4	G5	G6
< no sample	8.7	3.3
		4.7
G7	G8	G9
20.7	no sample <	no sample
G10	G11	G12
24.9	34.9	22.5
	37.1	
G13	G14	G15
22.7	37.9	24.7
G16	G17	G18
25.7	31.8	21.1

	Painter 1
5.4	< 0.1
	Painter 2
6.7	3.9

20.7	North Stack
	0.1
28.1	South Stack
	5.2
28.4	

26.2	Blank
	no sample

C.2

TEST: ORGANICS # 1
DATE: 09/22/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8

TOTAL ORGANICS (mg/m^3)

G1 10	G2 15	G3 12
G4 29	G5 87	G6 52, 51
G7 111	G8 179	G9 153
G10 192	G11 288, 259	G12 316
G13 240	G14 295	G15 237
G16 388	G17 170	G18 114

Painter 1 35

Painter 2 no sample

North Stack 46

South Stack 17

Blank 18

C.2

TEST: ORGANICS #2 BARSTOW MCLB
DATE: 09/22/93 PM AREA 11 TESTS
METHOD: MOD. NIOSH 1300 ACUREX PROJECT 8

TOTAL ORGANICS (mg/m^3)

G1 26.9	G2 0.3	G3 no sample
G4 no sample	G5 23.5	G6 14.7, 15.5
G7 45.8	G8 no sample	G9 no sample
G10 53.9	G11 70.4, 74.4	G12 47.9
G13 48.7	G14 75.7	G15 53.3
G16 58.1	G17 67.1	G18 48.6

13.6	Painter 1 0.3
19.5	Painter 2 13.1
45.8	North Stack 44.8
58.7	South Stack 21.7
59.2	
57.9	Blank no sample

TEST: ORGANICS # 1
DATE: 09/22/93 AM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

BOOTH Temperature: 78 P Barr: 29.92

GRID LOC	TUBE SET NUMBER	SPL TIME (min)	Pump #	Pre-Cal (ml/min)	Post-Cal (ml/min)	ACUREX Sample #	MEK (ug)	ETHYL BENZENE (ug)	XYLENES (ug)	PGME ACETATE (ug)	BUTYL ACETATE (ug)	MIAK (ug)	TOLUENE (ug)	HEXYL ACETATE (ug)	n-BUTYL ALCOHOL (ug)	TOTAL ORGANICS (ug)
Grid 1	21	38	17	1008	1000	930204&03	37.9	10.9	26.9 <	1	25.8	265	14.4	<	2	383.9
Grid 2	254	37	14	1025	1003	930205&06	62.1	16.1	44.8 <	1	46.6	371	26.6	<	2	570.2
Grid 3	253	36	12	1030	1022	930207&08	42.9	12.3	29.7 <	1	30.4	290	22.6	9.2 <	2	440.1
Grid 4	22	37	4	991	968	930209&10	132	24.6	89.8 <	1	105	628	62.3	<	2	1044.7
Grid 5	260	37	18	1022	1028	930211&300	362	64.8	264	11.5	308	1900	176	135 <	2	3223.3
Grid 6	18	37	10	1030	1012	930212&13	205	33.8	151	11.2	176	1150	98.7	107 <	2	1934.7
Grid 7	257	37	15	968	964	930214&15	419	75.8	305	13.7	355	2270	210	248 <	2	3898.5
Grid 8	255	37	22	960	976	930216&17	706	133	508	27.2	595	3660	344	316 <	2	6291.2
Grid 9	23	40	8	985	970	930218&19	624	124	486	24.1	558	3440	321	286 <	2	5865.1
Grid 10	265	38	16	1010	978	930220&21	814	146	566	29.8	651	4100	388	403 <	2	7099.8
Grid 11	16	37	1	1025	988	930222&23	1220	221	841	42.6	961	6080	552	592 <	2	10511.6
Grid 12	17	37	19	980	845	930224&25	1070	224	866	45.5	980	6200	549	548 <	2	10484.5
Grid 13	264	38	3	1029	972	930226&27	1080	171	676	37.5	770	5190	437	591 <	2	8954.5
Grid 14	25	37	9	1015	1001	930228&29	1350	219	733	41.8	801	6390	525	753 <	2	10814.8
Grid 15	258	36	5	1009	970	930230&31	929	171	669	35.8	670	4890	419	506 <	2	8291.8
Grid 16	251	5	2	1001	792	930232&33	534	25.7	127 <	1	250	342	218	207 <	2	1706.7
Grid 17	12	37	23	1046	1028	930234&35	1530	113	443 <	1	577	2870	366	515 <	2	6417
Grid 18	252	36	7	1013	979	930236&37	930	72.8	285 <	1	363	1820	241	305 <	2	4019.8
Painter 1	263	37	24	1030	970	930248&49	238	27.7	104 <	1	138	687	89.5	<	2	1287.2
Painter 2	--	--	-	--	--	--										0
Grid 6 Dup	11	36	6	1041	989	930238&39	234	38.8	146 <	1	159	1070	94.8	87.3 <	2	1832.9
Grid 11 Dup	259	38	11	1041	1020	930240&41	1390	193	721	49.0	823	5840	470	472	3.3	9961.3
North Stk	24	34	26	1018	977	930244&45	175	5.5	137 <	1	166	948	93.1	<	2	1527.6
South Stk	261	35	25	1017	959	930246&47	62.8	8.6	39.0 <	1	19.6	216	120		121	588
Field Blank	262		NA			930242&43 <	2 <	1	8.4 <	1 <	1 <	1 <	1 <	1 <	2	18.4

TEST: ORGANICS #2
DATE: 09/22/93 PM
METHOD: MOD. NIOSH 1300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: du
Print Date: 04/04/94

BOOTH TEMP.: 89 P Barr: 29.92

GRID LOC	TUBE SET NUMBER	SPL TIME (min)	Pump #	Pre-Cal (ml/min)	Post-CAL (ml/min)	ACUREX Sample #	MEK (ug)	ETHYL BENZENE (ug)	XYLENES (ug)	PGME ACETATE (ug)	BUTYL ACETATE (ug)	MIAK (ug)	TOLUENE (ug)	HEXYL ACETATE (ug)	n-BUTYL ALCOHOL (ug)	TOTAL ORGANICS (ug)
Grid 1	186	40	26	976.5	1027	930250&51	210	2.6	14.5 <	1	10.7	54.2	327	2.8	415	1038
Grid 2	183	40	17	999.5	1010	930252&53 <	2 <	1	1.6 <	1 <	1 <	1 <	1 <	1 <	2	12
Grid 3	184	0	10	1012	1030	930254&55 <	2 <	1	3.1 <	1 <	1 <	1	1.2 <	1 <	2	13
Grid 4	203	0	9	1001	1026	930256&57 <	2 <	1	3.4 <	1 <	1 <	1	1.5 <	1 <	2	14
Grid 5	202	39	13	1030	1021	930258&59	184	2.8	15.7 <	1	10.5	74.6	276	3.6	335	903
Grid 6	179	39	8	970.1	980	930260&61	152	2.8	17.0 <	1	12.0	111	114	7.8	120	538
Grid 7	187	40	16	977.8	980	930262&63	226	2.7	15.0 <	1	14.1	77.7	602	4.4	781	1724
Grid 8	182	0	23	1028	1018	930264&65										0
Grid 9	190	0	14	1003	1017	930266&67 <	2 <	1	3.2 <	1 <	1 <	1	1.3 <	1 <	2	14
Grid 10	256	39	6	989.2	1016	930268&69	243	2.8	16.2 <	1	16.7	78.7	727	4.2	937	2027
Grid 11	198	39	1	988.1	981	930270&71	219	2.9	16.0 <	1	18.3	76.4	973	3.5	1290	2600
Grid 12	178	39	5	969.7	1004	930272&73	211	2.4	12.9 <	1	9.9	68.7	635	1.0	832	1774
Grid 13	200	39	22	975.5	966	930274&75	204	2.1	12.0 <	1	10.7	59.5	653	1.4	828	1772
Grid 14	197	39	12	1022	1003	930276&77	221 <	1	16.4 <	1	14.0	70.7	1110	2.5	1440	2877
Grid 15	194	39	7	978.8	999	930278&79	231	2.7	14.4 <	1	14.2	73.2	719	4.7	915	1975
Grid 16	180	40	25	958.6	970	930280&81	249	3.0	17.3	4.1	16.6	67.0	842	4.3	952	2155
Grid 17	188	39	15	963.6	950	930282&83	229	2.3	14.2 <	1	14.4	66.4	935	4.9	1140	2407
Grid 18	201	39	18	1028	1030	930284&85	264	2.5	14.3 <	1	14.3	68.3	691	4.8	816	1876
Painter 1 under	195	38	11	1020	988	930298&99 <	2 <	1 <	1 <	1 <	1 <	1 <	1 <	1 <	2	11
Painter 1 over	192	38	24	969.4	988	930292&93	354	33.2	157.1	6.0	190	1050	135	<	2	1927
Painter 2	193	38	20	1013	1018	931257&56	157	1.6	8.2 <	1	6.1	44.8	123		145	487
Grid 6 Dup	176	20	4	968	993	930286&87	62.7	1.2	8.0 <	1	4.7	47.2	77.7 <	1	88.1	292
Grid 11 Dup	196	39	19	979	1050	930288&89	237	3.1	17.1 <	1	17.6	81.6	1060	3.8	1410	2831
North Stk	177	38	28	995	955	930294&95 <	2	31.1	54.5 <	1	175	1110	118	100	3.4	1595
South Stk	189	38	27	970	944	930296&97	225 <	1	25.0 <	1	17.8	136	170		183	759
Field Blank																0

C.2

BARSTOW METHOD 25A FID TEST RESULTS

BOOTH	DATE	TEST	DURATION (min)	NORTH FLOWRATE (dscfm)	SOUTH FLOWRATE (dscfm)	NORTH AVG [ ] (ppm C3)	NORTH CORR [ ] (ppm C3)	SOUTH AVG [ ] (ppm C3)	SOUTH CORR [ ] (ppm C3)
BOOTH 1	9/14	PART 1	73	28909	28485	67.1	70.6	36.2	37.8
	9/14	PART 2	76	28397	28694	57.1	58.6	62.1	64.8
	9/15	ISO 1	66	28692	27125	77.3	79.7	38.1	40.0
	9/15	ISO 2	53	28615	27299	88.4	89.7	75.8	77.2
	9/15	ISO 3	50	27106	25523	129	130	50.8	52.6
	9/16	MET 1	81	28756	27178	25.0	24.3	18.5	20.6
	9/16	MET 2	49	27598	25591	83.5	82.0	98.0	98.7
	9/16	PART 3	40	27446	27730	106	103	123	122
	9/17	MET 3	62	28248	27847	25.6	25.8	17.2	18.1
	9/17	ORG 1	35	27332	26172	118	116	91.4	90.2
	9/20	ORG 2	50	26813	23035	116	116	62.7	62.2
	9/20	ORG 3	39	25498	22768	138	136	98.8	97.7
AREA 11	9/22	ORG 1	35	26672	26560	48.0	48.0	12.1	12.1
	9/22	ORG 2	43	26672	26560	40.8	40.4	15.9	15.9
	9/23	PART 1	31	26464	24256	29.4	29.6	12.2	12.0
	9/23	PART 2	28	26464	24256	51.1	52.4	17.4	17.0

C.3

C.4

BARSTOW COATING USAGE/PERCENT VOC MASS RELEASE CALCULATIONS

BOOTH	DATE	TEST	COATING TYPE	COATING USAGE (GRAMS)	VOC CONTENT (% BY WT)	MASS SOLVENT RELEASE (GRAMS)	MASS OF C MEAS IN DUCT (GRAMS)	CLOSURE (%)
BOOTH 1	9/14	PART 1	POLY TOP	35336	31.2	12057	12879	94
			THINNER	1032	100			
	9/14	PART 2	POLY TOP	34981	31.2	11934	15181	79
			THINNER	1020	100			
	9/15	ISO 1	POLY TOP	30137	31.2	10427	12592	83
			THINNER	256	400			
	9/15	ISO 2	POLY TOP	33165	31.2	10568	14058	75
			THINNER	221	100			
	9/15	ISO 3	POLY TOP	39145	31.2	12672	13806	92
			THINNER	459	100			
	9/16	MET 1	EPOXY PRIMER	14665	9.0	7088	5895	120
			WASH PRIMER	6699	86.1			
	9/16	MET 2	POLY TOP	27391	31.2	8644	13288	65
			THINNER	98	100			
	9/16	PART 3	POLY TOP	37943	31.2	12868	14043	92
			THINNER	1030	100			
	9/17	MET 3	EPOXY PRIMER	12832	9.0	4837	4380	110
			WASH PRIMER	4276	86.1			
	9/17	ORG 1	POLY TOP	30292	31.2	10626	10972	97
			THINNER	1175	100			
	9/20	ORG 2	POLY TOP	31331	31.2	10747	12867	84
			THINNER	972	100			
	9/20	ORG 3	POLY TOP	25632	31.2	8794	12237	72
			THINNER	797	100			
AREA 11	9/22	ORG 1	POLY TOP	3231	31.2	1394	3164	
			THINNER	386	100			
			EPOXY PRIMER	NO DATA				
	9/22	ORG 2	POLY TOP	NO DATA		505	3646	
			THINNER	NO DATA				
			EPOXY PRIMER	5615	9.0			
	9/23	PART 1	POLY TOP	3402	31.2	1669	1900	88
			THINNER	268	100			
			EPOXY PRIMER	3768	9.0			
	9/23	PART 2	POLY TOP	5529	31.2	2817	2842	99
			THINNER	435	100			
			EPOXY PRIMER	7296	9.0			

Note: Closure is defined as mass released divided by mass measured in ducts

TEST 1 (PARTICULATE 1)
SOUTH 1 MASS BALANCE

NORTH STACK

FID AVG CONC: 212 PPM CARBON
STACK FLOW: 28909 DSCFM
TEST TIME: 73 MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.0	4.30	3.22	192
ETHYL BENZENE	3.0	6.27	3.46	207
XYLENES	10.0	21.11	11.63	695
PGMEA	0.0	0.02	0.01	1
n-BUTYL ACETATE	5.1	10.90	8.76	524
MIAK	77.7	164.54	111.19	6647
TOLUENE	1.2	2.49	1.36	81
n-BUTYL ALCOHOL	0.0	0.05	0.04	2
HEXYL ACETATE	1.0	2.11	1.25	75
TOTAL		212		8425

SOUTH STACK

FID AVG CONC: 113 PPM CARBON
STACK FLOW: 28485 DSCFM
TEST TIME: 73 MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	4.2	4.80	3.59	212
ETHYL BENZENE	3.2	3.62	1.99	117
XYLENES	10.2	11.62	6.40	377
PGMEA	0.7	0.80	0.73	43
n-BUTYL ACETATE	5.5	6.25	5.02	296
MIAK	72.4	82.10	55.48	3268
TOLUENE	2.0	2.26	1.23	73
n-BUTYL ALCOHOL	0.1	0.11	0.08	5
HEXYL ACETATE	1.6	1.85	1.09	64
TOTAL		113		4455

TOTAL SOLVENT MEASURED: 12879 GRAMS
TOTAL SOLVENT RELEASED: 12057 GRAMS
PERCENT CLOSURE: 94 %

C.4

TEST 2 (PARTICULATE 2)
BOOTH 1 MASS BALANCE

NORTH STACK

FID AVG CONC:	176	PPM CARBON
STACK FLOW:	28397	DSCFM
TEST TIME:	76	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONSTITUENT MASS EMISS. CONC (PPM C)	CONC (mg/m^3)	PER TEST (GRAMS)
MEK	1.7	2.98	2.23	136
ETHYL BENZENE	3.0	5.24	2.89	177
XYLENES	9.6	16.96	9.34	571
PGMEA	0.7	1.15	1.05	64
n-BUTYL ACETATE	5.0	8.81	7.08	433
MIAK	77.7	136.59	92.30	5643
TOLUENE	1.2	2.09	1.14	70
n-BUTYL ALCOHOL	0.1	0.09	0.07	4
HEXYL ACETATE	1.1	1.89	1.12	68
TOTAL		176		7166

SOUTH STACK

FID AVG CONC:	194	PPM CARBON
STACK FLOW:	28694	DSCFM
TEST TIME:	76	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONSTITUENT MASS EMISS. CONC (PPM C)	CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.8	5.39	4.03	249
ETHYL BENZENE	2.8	5.41	2.98	184
XYLENES	9.3	18.07	9.96	615
PGMEA	0.6	1.16	1.06	66
n-BUTYL ACETATE	4.9	9.47	7.61	470
MIAK	76.9	149.47	101.01	6240
TOLUENE	1.4	2.78	1.52	94
n-BUTYL ALCOHOL	0.0	0.07	0.06	3
HEXYL ACETATE	1.3	2.56	1.52	94
TOTAL		194		8015

TOTAL SOLVENT MEASURED:	15181	GRAMS
TOTAL SOLVENT RELEASED:	11934	GRAMS
PERCENT CLOSURE:	.79	%

TEST 3 (ISOCYANATE 1)

BOOTH 1 MASS BALANCE

NORTH STACK

FID AVG CONC:	239	PPM CARBON
STACK FLOW:	28692	DSCFM
TEST TIME:	66	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.4	5.83	4.36	234
ETHYL BENZENE	2.8	6.75	3.72	199
XYLENES	9.6	23.06	12.70	681
PGMEA	0.0	0.04	0.04	2
n-BUTYL ACETATE	4.9	11.81	9.49	509
MIAK	77.7	185.82	125.57	6736
TOLUENE	1.3	2.99	1.63	88
n-BUTYL ALCOHOL	0.0	0.08	0.06	3
HEXYL ACETATE	1.1	2.73	1.61	87
TOTAL		239		8539

SOUTH STACK

FID AVG CONC:	120	PPM CARBON
STACK FLOW:	27125	DSCFM
TEST TIME:	66	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	3.4	4.07	3.04	154
ETHYL BENZENE	2.8	3.42	1.88	95
XYLENES	9.8	11.75	6.47	328
PGMEA	0.0	0.04	0.03	2
n-BUTYL ACETATE	5.1	6.15	4.94	251
MIAK	75.8	90.99	61.48	3118
TOLUENE	1.6	1.94	1.06	54
n-BUTYL ALCOHOL	0.1	0.07	0.05	3
HEXYL ACETATE	1.3	1.59	0.94	48
TOTAL		120		4052

TOTAL SOLVENT MEASURED:	12592	GRAMS
TOTAL SOLVENT RELEASED:	10427	GRAMS
PERCENT CLOSURE:	83	%

TEST 4 (ISOCYANATE 2)
BOOTH 1 MASS BALANCE

NORTH STACK

FID AVG CONC:	269	PPM CARBON
STACK FLOW:	28615	DSCFM
TEST TIME:	53	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONSTITUENT MASS EMISS. CONC (PPM C)	CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.1	5.77	4.32	185
ETHYL BENZENE	2.8	7.60	4.18	180
XYLENES	9.6	25.96	14.30	614
PGMEA	0.7	1.82	1.66	71
n-BUTYL ACETATE	5.1	13.61	10.93	470
MIAK	77.4	208.33	140.78	6048
TOLUENE	1.0	2.77	1.51	65
n-BUTYL ALCOHOL	0.0	0.07	0.05	2
HEXYL ACETATE	1.2	3.18	1.88	81
TOTAL		269		7717

SOUTH STACK

FID AVG CONC:	232	PPM CARBON
STACK FLOW:	27299	DSCFM
TEST TIME:	53	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONSTITUENT MASS EMISS. CONC (PPM C)	CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.3	5.21	3.90	160
ETHYL BENZENE	2.7	6.27	3.45	141
XYLENES	9.4	21.66	11.93	489
PGMEA	0.7	1.58	1.44	59
n-BUTYL ACETATE	5.1	11.74	9.44	387
MIAK	77.7	179.90	121.57	4983
TOLUENE	1.4	3.25	1.77	73
n-BUTYL ALCOHOL	0.0	0.10	0.08	3
HEXYL ACETATE	0.8	1.88	1.11	46
TOTAL		232		6341

TOTAL SOLVENT MEASURED:	14058	GRAMS
TOTAL SOLVENT RELEASED:	10568	GRAMS
PERCENT CLOSURE:	75	%

TEST 5 (ISOCYANATE 3)

BOOTH 1 MASS BALANCE

C.4

NORTH STACK

FID AVG CONC:	390	PPM CARBON
STACK FLOW:	27106	DSCFM
TEST TIME:	50	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.0	7.90	5.91	227
ETHYL BENZENE	2.6	10.30	5.68	218
XYLENES	9.3	36.19	19.94	765
PGMEA	0.5	1.93	1.77	68
n-BUTYL ACETATE	4.9	19.19	15.42	592
MIAK	78.6	306.36	207.03	7948
TOLUENE	1.2	4.80	2.62	101
n-BUTYL ALCOHOL	0.0	0.08	0.06	2
HEXYL ACETATE	0.8	3.25	1.93	74
TOTAL		390		9995

SOUTH STACK

FID AVG CONC:	158	PPM CARBON
STACK FLOW:	25523	DSCFM
TEST TIME:	50	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.6	4.15	3.10	112
ETHYL BENZENE	2.6	4.17	2.30	83
XYLENES	9.4	14.80	8.15	295
PGMEA	0.6	0.93	0.84	31
n-BUTYL ACETATE	5.0	7.85	6.30	228
MIAK	77.5	122.36	82.68	2989
TOLUENE	1.4	2.19	1.20	43
n-BUTYL ALCOHOL	0.1	0.10	0.08	3
HEXYL ACETATE	0.8	1.26	0.75	27
TOTAL		158		3811

TOTAL SOLVENT MEASURED:	13806	GRAMS
TOTAL SOLVENT RELEASED:	12672	GRAMS
PERCENT CLOSURE:	92	%

C.4

TEST 6 (METALS 1)

BOOTH 1 MASS BALANCE

NORTH STACK

FID AVG CONC:	73	PPM CARBON
STACK FLOW:	28756	DSCFM
TEST TIME:	81	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONSTITUENT MASS EMISS. CONC (PPM C)	CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.1	1.55	1.16	77
ETHYL BENZENE	0.2	0.16	0.09	6
XYLENES	1.7	1.21	0.67	44
PGMEA	0.1	0.05	0.04	3
n-BUTYL ACETATE	0.5	0.39	0.31	21
MIAK	1.0	0.73	0.49	32
TOLUENE	36.7	26.72	14.59	963
n-BUTYL ALCOHOL	57.3	41.79	32.12	2119
HEXYL ACETATE	0.4	0.30	0.18	12
TOTAL		73		3276

SOUTH STACK

FID AVG CONC:	62	PPM CARBON
STACK FLOW:	27178	DSCFM
TEST TIME:	81	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONSTITUENT MASS EMISS. CONC (PPM C)	CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.8	1.71	1.28	80
ETHYL BENZENE	0.3	0.20	0.11	7
XYLENES	1.1	0.68	0.38	23
PGMEA	0.1	0.04	0.04	2
n-BUTYL ACETATE	0.7	0.42	0.34	21
MIAK	1.0	0.61	0.41	26
TOLUENE	37.8	23.37	12.76	796
n-BUTYL ALCOHOL	55.9	34.57	26.57	1657
HEXYL ACETATE	0.3	0.19	0.11	7
TOTAL		62		2619

TOTAL SOLVENT MEASURED:	5895	GRAMS
TOTAL SOLVENT RELEASED:	7088	GRAMS
PERCENT CLOSURE:	120	%

TEST 7 (METALS 2)

BOOTH 1 MASS BALANCE

C.4

NORTH STACK

FID AVG CONC: 246 PPM CARBON
STACK FLOW: 27598 DSCFM
TEST TIME: 49 MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.7	6.56	4.91	188
ETHYL BENZENE	3.1	7.51	4.14	158
XYLENES	11.0	27.06	14.90	571
PGMEA	0.7	1.79	1.63	62
n-BUTYL ACETATE	5.9	14.41	11.58	444
MIAK	73.1	179.80	121.50	4655
TOLUENE	2.0	4.85	2.65	101
n-BUTYL ALCOHOL	0.0	0.08	0.06	2
HEXYL ACETATE	1.6	3.95	2.34	90
TOTAL		246		6271

SOUTH STACK

FID AVG CONC: 296 PPM CARBON
STACK FLOW: 25591 DSCFM
TEST TIME: 49 MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	3.0	8.95	6.69	238
ETHYL BENZENE	2.5	7.35	4.05	144
XYLENES	9.0	26.68	14.70	522
PGMEA	0.5	1.44	1.31	47
n-BUTYL ACETATE	5.1	15.02	12.07	429
MIAK	76.1	225.19	152.17	5406
TOLUENE	2.0	5.99	3.27	116
n-BUTYL ALCOHOL	0.0	0.12	0.09	3
HEXYL ACETATE	1.8	5.37	3.18	113
TOTAL		296		7017

TOTAL SOLVENT MEASURED: 13288 GRAMS
TOTAL SOLVENT RELEASED: 8644 GRAMS
PERCENT CLOSURE: 65 %

C.4

TEST 8 (PARTICULATE 3)

BOOTH + I MASS BALANCE

NORTH STACK

FID AVG CONC: 309 PPM CARBON
STACK FLOW: 27446 DSCFM
TEST TIME: 40 MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.8	8.61	6.44	200
ETHYL BENZENE	3.1	9.55	5.26	164
XYLENES	11.0	34.04	18.75	583
PGMEA	0.0	0.05	0.05	1
n-BUTYL ACETATE	6.1	18.98	15.25	474
MIAK	73.0	225.65	152.48	4742
TOLUENE	2.0	6.06	3.31	103
n-BUTYL ALCOHOL	0.0	0.10	0.08	2
HEXYL ACETATE	1.9	5.96	3.53	110
TOTAL		309		6380

SOUTH STACK

FID AVG CONC: 366 PPM CARBON
STACK FLOW: 27730 DSCFM
TEST TIME: 40 MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	3.2	11.89	8.89	279
ETHYL BENZENE	2.6	9.40	5.18	163
XYLENES	9.3	34.16	18.82	591
PGMEA	0.5	1.78	1.62	51
n-BUTYL ACETATE	5.5	20.00	16.07	505
MIAK	74.0	270.82	183.01	5750
TOLUENE	2.2	8.22	4.49	141
n-BUTYL ALCOHOL	0.0	0.13	0.10	3
HEXYL ACETATE	2.6	9.59	5.68	178
TOTAL		366		7663

TOTAL SOLVENT MEASURED: 14043 GRAMS
TOTAL SOLVENT RELEASED: 12868 GRAMS
PERCENT CLOSURE: 92 %

TEST 9 (METALS 3)

BOOTH 1 MASS BALANCE

C.4

NORTH STACK

FID AVG CONC:	77	PPM CARBON
STACK FLOW:	28248	DSCFM
TEST TIME:	62	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	1.7	1.31	0.98	49
ETHYL BENZENE	0.2	0.17	0.09	5
XYLENES	1.0	0.75	0.41	20
PGMEA	0.1	0.07	0.06	3
n-BUTYL ACETATE	0.3	0.24	0.19	9
MIAK	0.3	0.23	0.16	8
TOLUENE	40.6	31.40	17.14	851
n-BUTYL ALCOHOL	55.7	43.12	33.15	1645
HEXYL ACETATE	0.1	0.11	0.06	3
TOTAL		77		2592

SOUTH STACK

FID AVG CONC:	54	PPM CARBON
STACK FLOW:	27847	DSCFM
TEST TIME:	62	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.1	1.15	0.86	42
ETHYL BENZENE	0.2	0.12	0.07	3
XYLENES	1.1	0.62	0.34	17
PGMEA	0.1	0.08	0.07	3
n-BUTYL ACETATE	0.5	0.26	0.21	10
MIAK	1.4	0.76	0.51	25
TOLUENE	40.4	21.94	11.98	586
n-BUTYL ALCOHOL	53.4	28.97	22.27	1089
HEXYL ACETATE	0.7	0.41	0.24	12
TOTAL		54		1787

TOTAL SOLVENT MEASURED:	4380	GRAMS
TOTAL SOLVENT RELEASED:	4837	GRAMS
PERCENT CLOSURE:	110	%

C-4

TEST 10 (ORGANICS 1)

BOOTH 1 MASS BALANCE

NORTH STACK

FID AVG CONC:	348	PPM CARBON
STACK FLOW:	27332	DSCFM
TEST TIME:	35	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	1.9	6.50	4.86	132
ETHYL BENZENE	2.7	9.53	5.25	142
XYLENES	11.1	38.55	21.24	575
PGMEA	0.5	1.88	1.72	47
n-BUTYL ACETATE	5.9	20.66	16.60	450
MIAK	76.3	265.56	179.45	4863
TOLUENE	1.5	5.20	2.84	77
n-BUTYL ALCOHOL	0.0	0.12	0.09	2
HEXYL ACETATE	0.0	0.00	0.00	0
TOTAL		348		6288

SOUTH STACK

FID AVG CONC:	271	PPM CARBON
STACK FLOW:	26172	DSCFM
TEST TIME:	35	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.5	6.88	5.15	134
ETHYL BENZENE	2.7	7.24	3.99	103
XYLENES	11.2	30.41	16.75	435
PGMEA	0.5	1.47	1.35	35
n-BUTYL ACETATE	6.2	16.88	13.56	352
MIAK	74.7	202.22	136.65	3546
TOLUENE	2.0	5.37	2.93	76
n-BUTYL ALCOHOL	0.0	0.13	0.10	3
HEXYL ACETATE	0.0	0.00	0.00	0
TOTAL		271		4683

TOTAL SOLVENT MEASURED:	10972	GRAMS
TOTAL SOLVENT RELEASED:	10626	GRAMS
PERCENT CLOSURE:	97	%

TEST 11 (ORGANICS 2)

BOOTH I MASS BALANCE

NORTH STACK

FID AVG CONC: 348 PPM CARBON
STACK FLOW: 26813 DSCFM
TEST TIME: 50 MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	2.0	6.91	5.17	196
ETHYL BENZENE	2.8	9.68	5.33	203
XYLENES	11.2	38.86	21.40	813
PGMEA	0.4	1.41	1.28	49
n-BUTYL ACETATE	5.8	20.06	16.12	612
MIAK	76.3	265.48	179.40	6813
TOLUENE	1.6	5.45	2.98	113
n-BUTYL ALCOHOL	0.0	0.15	0.11	4
HEXYL ACETATE	0.0	0.00	0.00	0
TOTAL		348		8804

SOUTH STACK

FID AVG CONC: 187 PPM CARBON
STACK FLOW: 23035 DSCFM
TEST TIME: 50 MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	3.3	6.17	4.61	151
ETHYL BENZENE	2.7	4.97	2.74	89
XYLENES	10.8	20.14	11.09	362
PGMEA	0.5	0.87	0.79	26
n-BUTYL ACETATE	5.9	11.07	8.90	290
MIAK	74.8	139.65	94.37	3079
TOLUENE	2.0	3.67	2.00	65
n-BUTYL ALCOHOL	0.0	0.06	0.05	2
HEXYL ACETATE	0.0	0.00	0.00	0
TOTAL		187		4064

TOTAL SOLVENT MEASURED: 12867 GRAMS
TOTAL SOLVENT RELEASED: 10747 GRAMS
PERCENT CLOSURE: 84 %

C.4

TEST 12 (ORGANICS 3)

BOOTH 1 MASS BALANCE

NORTH STACK

FID AVG CONC:	408	PPM CARBON
STACK FLOW:	25498	DSCFM
TEST TIME:	39	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	10.8	43.90	32.84	925
ETHYL BENZENE	10.2	41.69	22.97	647
XYLENES	37.6	153.31	84.45	2379
PGMEA	0.1	0.21	0.19	5
n-BUTYL ACETATE	20.9	85.10	68.38	1926
MIAK	8.7	35.61	24.06	678
TOLUENE	7.1	28.83	15.74	443
n-BUTYL ALCOHOL	0.1	0.50	0.39	11
HEXYL ACETATE	4.6	18.84	11.16	314
TOTAL		408		7329

SOUTH STACK

FID AVG CONC:	293	PPM CARBON
STACK FLOW:	22768	DSCFM
TEST TIME:	39	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	3.7	10.80	8.08	203
ETHYL BENZENE	2.8	8.25	4.54	114
XYLENES	10.4	30.57	16.84	424
PGMEA	0.0	0.06	0.05	1
n-BUTYL ACETATE	5.8	17.12	13.76	346
MIAK	73.8	216.34	146.19	3677
TOLUENE	2.1	6.29	3.43	86
n-BUTYL ALCOHOL	0.0	0.13	0.10	3
HEXYL ACETATE	1.2	3.55	2.10	53
TOTAL		293		4908

TOTAL SOLVENT MEASURED:	12237	GRAMS
TOTAL SOLVENT RELEASED:	8794	GRAMS
PERCENT CLOSURE:	72	% ←

AREA 11 TEST 3 - PARTICULATE 1

MASS BALANCE

NORTH STACK

FID AVG CONC: 89 PPM CARBON
STACK FLOW: 26464 DSCFM
TEST TIME: 31 MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	13.2	11.76	8.79	204
ETHYL BENZENE	2.3	2.07	1.14	27
XYLENES	8.7	7.75	4.27	99
PGMEA	0.1	0.05	0.05	1
n-BUTYL ACETATE	5.4	4.83	3.88	90
MIAK	64.4	57.19	38.65	898
TOLUENE	4.3	3.84	2.10	49
n-BUTYL ALCOHOL	0.2	0.14	0.11	3
HEXYL ACETATE	1.3	1.16	0.69	16
TOTAL		89		1387

SOUTH STACK

FID AVG CONC: 36 PPM CARBON
STACK FLOW: 24256 DSCFM
TEST TIME: 31 MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	17.9	6.43	4.81	102
ETHYL BENZENE	1.1	0.39	0.22	5
XYLENES	5.0	1.82	1.00	21
PGMEA	0.2	0.06	0.05	1
n-BUTYL ACETATE	2.3	0.82	0.66	14
MIAK	27.0	9.74	6.58	140
TOLUENE	25.0	8.98	4.90	104
n-BUTYL ALCOHOL	19.8	7.12	5.47	117
HEXYL ACETATE	1.8	0.64	0.38	8
TOTAL		36		513

TOTAL SOLVENT MEASURED: 1900 GRAMS
TOTAL SOLVENT RELEASED: 1669 GRAMS
PERCENT CLOSURE: 88 %

C.4

AREA 11 TEST 4 - PARTICULATE 2

MASS BALANCE

NORTH STACK

FID AVG CONC:	157	PPM CARBON
STACK FLOW:	26464	DSCFM
TEST TIME:	28	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	11.0	17.27	12.91	271
ETHYL BENZENE	0.9	1.47	0.81	17
XYLENES	4.4	6.89	3.79	80
PGMEA	0.1	0.19	0.17	4
n-BUTYL ACETATE	1.8	2.86	2.30	48
MIAK	25.1	39.42	26.64	559
TOLUENE	30.8	48.48	26.47	556
n-BUTYL ALCOHOL	25.3	39.70	30.51	641
HEXYL ACETATE	0.6	0.94	0.55	12
TOTAL		157		2186

SOUTH STACK

FID AVG CONC:	51	PPM CARBON
STACK FLOW:	24256	DSCFM
TEST TIME:	28	MIN

CONSTITUENT	PERCENT TOTAL C FROM EACH CONSTITUENT (Tube Data) (%)	CONC (PPM C)	CONSTITUENT MASS EMISS. CONC (mg/m^3)	PER TEST (GRAMS)
MEK	8.9	4.53	3.39	65
ETHYL BENZENE	2.4	1.24	0.68	13
XYLENES	8.9	4.53	2.50	48
PGMEA	0.0	0.02	0.02	0
n-BUTYL ACETATE	5.7	2.89	2.32	45
MIAK	67.9	34.61	23.39	450
TOLUENE	4.4	2.23	1.22	23
n-BUTYL ALCOHOL	0.1	0.04	0.03	1
HEXYL ACETATE	1.8	0.91	0.54	10
TOTAL		51		656

TOTAL SOLVENT MEASURED:	2842	GRAMS
TOTAL SOLVENT RELEASED:	2817	GRAMS
PERCENT CLOSURE:	99	%

TEST: METALS # 1
DATE: 09/16/93 AM
METHOD: NIOSH 7300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 10/25/93

CHROME (ug/M3) - PRIMER

R1 0.0053	R2 0.0067	R3 0.0035
R4 0.036	R5 0.033	R6 0.015
R7 0.041	R8 0.051	R9 0.046 no sample
R10 0.059	R11 0.052	R12 0.052
R13 0.066	R14 0.065	R15 0.041
R16 0.024	R17 0.037	R18 0.021

Painter 1
0.067

Painter 2
no sample

North Stack
0.0048

South Stack
0.0038

Blanks
< 0.2
0.2
ug/filter

L3 0.0064	L2 0.010	L1 no sample
L6 0.0098 0.0126	L5 0.025	L4 0.032
L9 0.022	L8 0.048	L7 0.046
L12 0.040	L11 0.075 0.069	L10 0.087
L15 0.051	L14 0.092	L13 0.092
L18 0.044	L17 0.064	L16 0.098

C.5

TEST: METALS # 1
DATE: 09/16/93 AM
METHOD: NIOSH 7300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 10/25/93

ZINC (mg/M3) - PRIMER

R1 0.11	R2 0.11	R3 0.05
R4 0.51	R5 0.56	R6 0.29
R7 0.56	R8 0.84	R9 * 0.78 no sample
R10 0.89	R11 0.87	R12 1.0
R13 1.1	R14 1.1	R15 0.78
R16 0.35	R17 0.66	R18 0.32

Painter 1
1.10

Painter 2
no sample

North Stack
0.071

South Stack
0.059

Blanks
0.3
0.3
ug/filter

L3 0.076	L2 0.15	L1 no sample
L6 0.17 0.24	L5 0.43	L4 0.44
L9 0.40	L8 0.75	L7 0.67
L12 0.69	L11 1.2 1.2	L10 1.40
L15 0.87	L14 1.6	L13 1.3
L18 0.69	L17 1.2	L16 1.6

C.5

TEST: METALS # 2
DATE: 09/16/93 PM
METHOD: NIOSH 7300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/11/94

CHROME (mg/M3) - TOPCOAT

R1 0.0029	R2 0.0068	R3 0.0019
R4 0.0068	R5 0.021	R6 0.040
R7 0.014	R8 0.021	R9 0.0067 0.059
R10 0.012	R11 0.030	R12 0.16
R13 0.036	R14 0.062	R15 0.035
R16 0.030	R17 0.031	R18 0.017

Painter 1
no sample

Painter 2
0.0087

North Stack
0.0000

South Stack
0.0006

Blank
0.2
ug/filter

L3 0.0029	L2 0.0029	L1 0.0019
L6 0.0097 0.0094	L5 0.030	L4 0.0096
L9 0.0037	L8 0.020	L7 0.0083
L12 0.015	L11 0.0057 0.027	L10 0.015
L15 0.0038	L14 0.069	L13 0.012
L18 0.0067	L17 0.0097	L16 0.036

C.5

TEST: METALS # 2
DATE: 09/16/93 PM
METHOD: NIOSH 7300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/11/94

ZINC (mg/M3) - TOPCOAT

R1 0.0029	R2 0.0058	R3 0.0038
R4 0.0068	R5 0.017	R6 0.013
R7 0.011	R8 0.016	R9 0.0096 0.023
R10 0.013	R11 0.022	R12 0.027
R13 0.019	R14 0.022	R15 0.024
R16 0.018	R17 0.014	R18 0.0087

Painter 1
no sample

Painter 2
0.013

North Stack
0.0375

South Stack
0.0629

Blank
0.7
ug/filter

L3 0.0048	L2 0.0048	L1 0.0047
L6 0.0097 0.0085	L5 0.017	L4 0.0076
L9 0.0056	L8 0.012	L7 0.011
L12 0.0094	L11 0.012 0.015	L10 0.013
L15 0.012	L14 0.020	L13 0.012
L18 0.0077	L17 0.015	L16 0.021

C.S.

TEST: METALS # 3
DATE: 09/17/93 AM
METHOD: NIOSH 7300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/11/94

CHROME (mg/M3) - PRIMER

R1 0.0068	R2 0.0059	R3 0.0037
R4 0.015	R5 0.017	R6 0.014
R7 0.023	R8 0.030	R9 0.017 0.027
R10 0.044	R11 0.040	R12 0.031
R13 0.059	R14 0.050	R15 0.029
R16 0.019	R17 0.023	R18 0.016

Painter 1
no sample

North Stack
0.0020

South Stack
0.0018

Blank
0.2
ug/filter

L3 0.010	L2 0.015	L1 0.023
L6 0.015 0.016	L5 0.025	L4 0.024
L9 0.027	L8 0.039	L7 0.038
L12 0.033	L11 0.068 0.065	L10 0.049
L15 0.048	L14 0.062	L13 0.064
L18 0.019	L17 0.043	L16 0.041

TEST:	METALS # 3	BARSTOW MCLB		D E Initials:	ljl
DATE:	09/17/93 AM	BOOTH 1 TESTS		Q A Initials:	wdu
METHOD:	NIOSH 7300	ACUREX PROJECT 8517		Print Date:	04/11/94

ZINC (mg/M3) - PRIMER

R1 0.15	R2 0.12	R3 0.065
R4 0.29	R5 0.47	R6 0.42
R7 0.42	R8 0.72	R9 0.59, 0.79
R10 0.95	R11 1.0	R12 0.88
R13 1.3	R14 1.3	R15 0.86
R16 0.49	R17 0.63	R18 0.44

Painter 1 no sample
North Stack 0.0611
South Stack 0.0460
Blank 0.6 ug/filter

L3 0.24	L2 0.34	L1 0.57
L6 0.40, 0.43	L5 0.61	L4 0.53
L9 0.58	L8 1.0	L7 0.76
L12 1.1	L11 1.5, 1.7	L10 1.0
L15 1.5	L14 1.6	L13 1.4
L18 0.48	L17 1.2	L16 0.90

C5

C-5

TEST: METALS # 1
DATE: 09/16/93 AM
METHOD: NIOSH 7300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 10/25/93

BOOTH Temperature: 65 P Bar: 29.81

GRID LOC	FILTER NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	CHROME (ug)	ZINC (ug)	VOL (L) @ STP	CHROME (mg/M3)	ZINC (mg/M3)
L3	10	85	4	1975	2040	930651	1.1	13	171.0	6.4E-03	7.6E-02
L2	24	86	43	2005	2083	930650	1.8	27	176.1	1.0E-02	1.5E-01
L1	15	0	13	2011	2072	930649	2.7	37	0.0	no sample	no sample
L6	20	85	1	2003	2050	930654	1.7	30	172.6	9.8E-03	1.7E-01
L5	33	86	31	1989	2045	930653	4.4	75	173.8	2.5E-02	4.3E-01
L4	19	86	14	2025	2054	930652	5.7	78	175.8	3.2E-02	4.4E-01
L9	29	87	39	1997	2107	930657	3.9	72	178.9	2.2E-02	4.0E-01
L8	34	86	34	1988	2015	930656	8.3	130	172.5	4.8E-02	7.5E-01
L7	30	87	19	2025	2073	930655	8.3	120	178.6	4.6E-02	6.7E-01
L12	27	86	28	1988	2027	930660	7.0	120	173.0	4.0E-02	6.9E-01
L11	32	86	22	1989	2042	930659	13	210	173.7	7.5E-02	1.2E+00
L10	40	87	32	1933	2006	930658	15	240	171.7	8.7E-02	1.4E+00
L15	36	86	9	1991	2006	930663	8.8	150	172.2	5.1E-02	8.7E-01
L14	39	86	10	1996	2021	930662	16	270	173.1	9.2E-02	1.6E+00
L13	35	87	48	1977	2028	930661	16	220	174.6	9.2E-02	1.3E+00
L18	26	86	45	1996	2031	930666	7.6	120	173.5	4.4E-02	6.9E-01
L17	38	86	2	1984	1987	930665	11	200	171.1	6.4E-02	1.2E+00
L16	31	87	15	1997	1998	930664	17	280	174.1	9.8E-02	1.6E+00
PAINTER 1	42	81	16	2004	2026	930671	11	180	163.5	6.7E-02	1.1E+00
PAINTER 2	none	0	NA	0	0	---			0.0	no sample	no sample
L6 Dup	28	86	26	2011	2056	930668	2.2	42	175.2	1.3E-02	2.4E-01
L11 Dup	37	86	44	2010	2023	930669	12	200	173.8	6.9E-02	1.2E+00
R1	21	83	7	2001	2069	930631	0.9	18	169.2	5.3E-03	1.1E-01
R2	22	82	21	1982	2041	930632	1.1	19	165.3	6.7E-03	1.1E-01
R3	16	83	29	2008	2072	930633	0.6	8.9	169.7	3.5E-03	5.2E-02
R4	23	82	30	1982	2005	930634	5.9	84	163.8	3.6E-02	5.1E-01
R5	17	82	27	2134	2134	930635	5.8	98	175.3	3.3E-02	5.6E-01
R6	25	83	18	1993	2052	930636	2.5	49	168.2	1.5E-02	2.9E-01
R7	18	81	35	2001	2098	930637	6.8	93	166.3	4.1E-02	5.6E-01
R8	11	83	5	2012	2012	930638	8.6	140	167.3	5.1E-02	8.4E-01
R9	12	82	33	2012	2038	930670	7.7	130	166.4	4.6E-02	7.8E-01
R10	43	82	3	2015	2085	930640	10	150	168.4	5.9E-02	8.9E-01
R11	41	83	20	2001	2122	930641	9.0	150	171.4	5.2E-02	8.7E-01
R12	46	83	6	2011	2025	930642	8.8	170	167.8	5.2E-02	1.0E+00
R13	3	82	47	1999	2028	930643	11	180	165.4	6.6E-02	1.1E+00
R14	8	83	36	2019	2074	930644	11	190	170.2	6.5E-02	1.1E+00
R15	4	83	38	1983	2016	930645	6.9	130	166.3	4.1E-02	7.8E-01
R16	7	83	17	2015	2016	930646	4.0	58	167.6	2.4E-02	3.5E-01
R17	13	82	46	1984	2064	930647	6.1	110	166.3	3.7E-02	6.6E-01
R18	9	82	24	1993	2113	930648	3.6	54	168.7	2.1E-02	3.2E-01
R9 Dup	6	2	8	1980	2078	930639	0.5	21	4.1	no sample	no sample
L BLANK	5	87	NA	2000	2000	930672 <	0.2	0.3	174.4 <	1.1E-03	1.7E-03
R BLANK	14	83	NA	2000	2000	930667	0.2	0.3	166.3	1.2E-03	1.8E-03
NORTH STK							10	150	2105.0	4.8E-03	7.1E-02
SOUTH STK							7.8	120	2047.0	3.8E-03	5.9E-02

C.5

TEST: METALS # 2 BARSTOW MCLB D E Initials: ljl
DATE: 09/16/93 PM BOOTH 1 TESTS Q A Initials: wdu
METHOD: NIOSH 7300 ACUREX PROJECT 8517 Print Date: 04/11/94

BOOTH Temperature: 77 P Barr: 29.81

GRID LOC	FILTER NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	CHROME (ug)	ZINC (ug)	VOL (L) @ STP	CHROME (mg/M3)	ZINC (mg/M3)
L3	98	53	35	1981	2020	930735	0.3	0.5	103.9	2.9E-03	4.8E-03
L2	84	53	20	1974	2014	930734	0.3	0.5	103.5	2.9E-03	4.8E-03
L1	76	54	45	2031	2027	930733	0.2	0.5	107.3	1.9E-03	4.7E-03
L6	86	53	30	2005	1952	930738	1.0	1.0	102.7	9.7E-03	9.7E-03
L5	94	53	34	2015	2043	930737	3.2	1.8	105.3	3.0E-02	1.7E-02
L4	83	53	4	2040	1989	930736	1.0	0.8	104.6	9.6E-03	7.6E-03
L9	77	53	46	2064	2091	930741	0.4	0.6	107.9	3.7E-03	5.6E-03
L8	95	53	44	2023	1996	930740	2.1	1.2	104.3	2.0E-02	1.2E-02
L7	87	54	43	2083	2017	930739	0.9	1.2	108.4	8.3E-03	1.1E-02
L12	79	53	14	2054	2042	930744	1.6	1.0	106.3	1.5E-02	9.4E-03
L11	81	53	38	2016	2007	930743	0.6	1.3	104.4	5.7E-03	1.2E-02
L10	80	53	18	2052	2032	930742	1.6	1.4	106.0	1.5E-02	1.3E-02
L15	63	53	15	1998	2006	930747	0.4	1.2	103.9	3.8E-03	1.2E-02
L14	100	53	39	1961	1987	930746	7.1	2.1	102.5	6.9E-02	2.0E-02
L13	92	54	6	2025	2019	930745	1.3	1.3	107.0	1.2E-02	1.2E-02
L18	78	53	27	1995	2019	930750	0.7	0.8	104.2	6.7E-03	7.7E-03
L17	99	53	2	1987	1997	930749	1.0	1.6	103.4	9.7E-03	1.5E-02
L16	82	54	21	2041	2042	930748	3.9	2.3	108.0	3.6E-02	2.1E-02
PAINTER 1	61	0		2026	2034	930755	2.1	2.3	0.0	no sample	no sample
PAINTER 2	47	53	23	2018	1965	930756	0.9	1.3	103.4	8.7E-03	1.3E-02
L6 Dup	74	53	1	2050	2039	930752	1.0	0.9	106.2	9.4E-03	8.5E-03
L11 Dup	88	54	29	2072	2038	930753	2.9	1.6	108.7	2.7E-02	1.5E-02
R1	48	52	48	2028	2035	930715	0.3	0.3	103.5	2.9E-03	2.9E-03
R2	59	52	22	2042	2013	930716	0.7	0.6	103.3	6.8E-03	5.8E-03
R3	54	52	13	2072	2014	930717	0.2	0.4	104.1	1.9E-03	3.8E-03
R4	89	52	5	2012	2025	930718	0.7	0.7	102.8	6.8E-03	6.8E-03
R5	96	52	17	2016	2029	930719	2.2	1.7	103.0	2.1E-02	1.7E-02
R6	91	53	47	2028	2013	930720	4.2	1.4	104.9	4.0E-02	1.3E-02
R7	93	52	19	2073	2070	930721	1.5	1.2	105.5	1.4E-02	1.1E-02
R8	85	51	3	2085	2089	930722	2.2	1.7	104.3	2.1E-02	1.6E-02
R9	90	52	8	2078	2028	930723	0.7	1.0	104.6	6.7E-03	9.6E-03
R10	53	52	31	2045	2033	930724	1.2	1.4	103.9	1.2E-02	1.3E-02
R11	64	52	28	2027	1938	930725	3.0	2.2	101.0	3.0E-02	2.2E-02
R12	65	52	24	1985	1984	930726	16	2.7	101.1	1.6E-01	2.7E-02
R13	73	52	9	2006	1961	930727	3.6	1.9	101.0	3.6E-02	1.9E-02
R14	50	52	26	2056	2087	930728	6.5	2.3	105.5	6.2E-02	2.2E-02
R15	66	52	7	2069	2049	930729	3.7	2.5	104.9	3.5E-02	2.4E-02
R16	72	51	10	2021	1978	930730	3.0	1.8	99.9	3.0E-02	1.8E-02
R17	71	52	36	2074	2036	930731	3.2	1.5	104.7	3.1E-02	1.4E-02
R18	62	52	33	2038	2022	930732	1.8	0.9	103.4	1.7E-02	8.7E-03
R9 Dup	97	52	32	2006	2042	930754	6.1	2.4	103.1	5.9E-02	2.3E-02
L BLANK	60	54	NA	2000	2000	930751	0.2	0.7	105.8	1.9E-03	6.6E-03
NORTH STK							0.0	43	1148.0	0.0E+00	3.7E-02
SOUTH STK							0.7	73	1160.0	5.6E-04	6.3E-02

C.5

TEST: METALS # 3
DATE: 09/17/93 AM
METHOD: NIOSH 7300

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/11/94

BOOTH Temperature: 66 P Barr: 29.91

GRID LOC	FILTER NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	CHROME (ug)	ZINC (ug)	VOL (L) @ STP	CHROME (mg/M3)	ZINC (mg/M3)
L3	101	70	29	2017	2088	930777	1.5	34	144.2	1.0E-02	2.4E-01
L2	104	70	6	1994	2027	930776	2.1	48	141.2	1.5E-02	3.4E-01
L1	107	70	4	1959	2000	930775	3.2	79	139.0	2.3E-02	5.7E-01
L6	102	70	32	1998	2088	930780	2.2	57	143.5	1.5E-02	4.0E-01
L5	105	70	14	2049	2077	930779	3.6	88	144.9	2.5E-02	6.1E-01
L4	109	70	38	1976	2020	930778	3.4	74	140.3	2.4E-02	5.3E-01
L9	117	70	40	2002	2065	930783	3.8	83	142.8	2.7E-02	5.8E-01
L8	114	71	28	1979	1943	930782	5.5	140	139.7	3.9E-02	1.0E+00
L7	113	71	20	2003	2067	930781	5.5	110	145.0	3.8E-02	7.6E-01
L12	110	70	1	2055	1983	930786	4.7	160	141.8	3.3E-02	1.1E+00
L11	115	70	24	1997	1964	930785	9.4	210	139.1	6.8E-02	1.5E+00
L10	69	71	10	2001	1978	930784	7	140	141.7	4.9E-02	9.9E-01
L15	106	70	45	2049	2080	930789	7	220	145.0	4.8E-02	1.5E+00
L14	108	71	33	1966	2034	930788	8.9	230	142.5	6.2E-02	1.6E+00
L13	68	70	18	2058	2096	930787	9.3	200	145.9	6.4E-02	1.4E+00
L18	111	70	17	2026	2035	930792	2.7	69	142.6	1.9E-02	4.8E-01
L17	112	70	23	1961	1986	930971	5.9	160	138.6	4.3E-02	1.2E+00
L16	118	71	19	2011	2044	930790	5.9	130	144.5	4.1E-02	9.0E-01
PAINTER 1	126	0		2023	2149	930797	0.3	5.2	0.0	no sample	no sample
L6 Dup	103	70	30	2000	2035	930794	2.2	61	141.7	1.6E-02	4.3E-01
L11 Dup	120	71	31	2028	2077	930795	9.5	250	146.2	6.5E-02	1.7E+00
R1	122	67	2	2017	1925	930757	0.9	20	132.5	6.8E-03	1.5E-01
R2	116	68	21	2011	1987	930758	0.8	17	136.4	5.9E-03	1.2E-01
R3	119	68	43	2004	1962	930759	0.5	8.8	135.3	3.7E-03	6.5E-02
R4	123	67	5	2012	2019	930760	2.1	39	135.5	1.5E-02	2.9E-01
R5	121	68	34	2014	2020	930761	2.4	65	137.6	1.7E-02	4.7E-01
R6	124	68	7	2029	2054	930762	2	58	139.3	1.4E-02	4.2E-01
R7	55	67	35	1984	2085	930763	3.1	58	136.8	2.3E-02	4.2E-01
R8	75	68	16	2009	2041	930764	4.2	100	138.2	3.0E-02	7.2E-01
R9	128	68	26	1996	2008	930765	2.3	81	136.6	1.7E-02	5.9E-01
R10	58	67	39	2016	2059	930766	6	130	137.0	4.4E-02	9.5E-01
R11	56	67	27	1999	2042	930767	5.5	140	135.8	4.0E-02	1.0E+00
R12	67	67	3	2020	2044	930768	4.3	120	136.6	3.1E-02	8.8E-01
R13	57	67	8	2023	1991	930769	7.9	170	134.9	5.9E-02	1.3E+00
R14	44	67	36	2008	1969	930770	6.7	170	133.7	5.0E-02	1.3E+00
R15	52	68	48	1985	2106	930771	4.1	120	139.6	2.9E-02	8.6E-01
R16	49	67	42	2005	2031	930772	2.6	66	135.7	1.9E-02	4.9E-01
R17	70	68	9	1960	1969	930773	3.1	85	134.0	2.3E-02	6.3E-01
R18	45	67	15	2019	1997	930774	2.2	59	135.0	1.6E-02	4.4E-01
R9 Dup	125	68	47	2012	2061	930796	3.8	110	139.0	2.7E-02	7.9E-01
R BLANK	51	68	NA	2000	2000	930793	0.2	0.6	136.5	1.5E-03	4.4E-03
NORTH STK							3.2	97	1585.0	2.0E-03	6.1E-02
SOUTH STK							2.8	73	1587.0	1.8E-03	4.6E-02

Booth 1 C.5

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/16/93

Performed by: CF
Sample Location: NORTH EXHAUST

Test No./Type: 1/EPA multimetals
Start/Stop Time: 903-1023

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.243
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	0.9895
Barometric Pressure (in Hg)	P(b)	29.81
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	32
Total Sampling Time (min)	(theta)	(80.50)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		783.74
Gas Meter Final Reading (cu ft)		859.41
Net Gas Sample Volume (cu ft)	V(m)	(75.67)
Vol of Liquid Collected (ml)	Vl(c)	12.7
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.598)
Mass of Chromium (ug)		10.0000
Mass of Zinc (ug)		150.0000
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.806
Avg Orifice Meter Reading (in H20)	dH(avg)	=	3.038
Avg Stack Temperature (degF)	T(s avg)	=	66.3
Average Meter Temperature (degF)	T(m avg)	=	73.6
Avg SQRT(dP)		=	0.893

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	74.34
Stack Gas Water Vapor Proportion	B(wo)	=	0.008
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.76
Abs Stack Pressure (in Hg)	P(s)	=	29.79
Avg Stack Velocity (ft/sec)	V(s avg)	=	50.3
Isokineticity (%)	% I	=	96.0
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	28756
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	29023
Total Chromium Concentration (mg/M3)		=	0.0047
Total Zinc Concentration (mg/M3)		=	0.0712

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	0.920	3.42	64	62	62	0.9592
2	2.5	0.940	3.49	66	66	63	0.9695
3	2.5	1.000	3.73	66	69	64	1.0000
4	2.5	0.900	3.35	65	69	64	0.9487
5	2.5	0.580	2.17	65	73	65	0.7616
6	2.5	0.600	2.24	65	74	65	0.7746
7	2.5	0.850	3.19	65	75	65	0.9220
8	2.5	0.860	3.22	65	77	66	0.9274
9	2.5	0.870	3.29	65	78	67	0.9327
10	2.5	0.850	3.21	65	78	67	0.9220
11	2.5	0.780	2.95	65	79	68	0.8832
12	2.5	0.800	3.03	65	79	68	0.8944
13	2.5	0.800	3.03	67	80	69	0.8944
14	2.5	0.770	2.92	67	81	70	0.8775
15	2.5	0.860	3.26	67	81	70	0.9274
16	2.5	0.850	3.11	67	81	70	0.9220
17	2.5	0.820	3.11	67	81	71	0.9055
18	2.5	0.720	2.72	67	80	70	0.8485
19	2.5	0.250	0.94	67	80	70	0.5000
20	2.5	0.550	2.08	67	80	70	0.7416
21	2.5	0.690	2.61	67	80	70	0.8307
22	2.5	0.720	2.73	67	81	71	0.8485
23	2.5	0.940	3.56	67	82	72	0.9695
24	2.5	0.850	3.22	67	82	72	0.9220
25	2.5	0.820	3.11	67	82	73	0.9055
26	2.5	0.860	3.27	67	82	73	0.9274
27	2.5	0.890	3.37	67	82	73	0.9434
28	2.5	0.870	3.30	67	82	72	0.9327
29	2.5	0.900	3.41	67	82	72	0.9487
30	2.5	0.890	3.37	67	82	72	0.9434
31	2.5	0.900	3.41	67	82	72	0.9487
32	3	0.900	3.41	67	82	72	0.9487
							0.0000
							0.0000
TOTALS	80.5	25.800	97.23	2121	2504	2208	28.5813

Booth 1 C-5

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/16/93

Performed by: BKL
Sample Location: SOUTH EXHAUST

Test No./Type: 1/EPA multimetals
Start/Stop Time: 859-1027

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.242
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	1.0190
Barometric Pressure (in Hg)	P(b)	29.81
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	32
Total Sampling Time (min)	(theta)	(78.20)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		219.19
Gas Meter Final Reading (cu ft)		291.56
Net Gas Sample Volume (cu ft)	V(m)	(72.37)
Vol of Liquid Collected (ml)	Vl(c)	18.7
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.880)
Mass of Chromium (ug)		7.8000
Mass of Zinc (ug)		120.0000
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.744
Avg Orifice Meter Reading (in H20)	dH(avg)	=	2.775
Avg Stack Temperature (degF)	T(s avg)	=	71.7
Average Meter Temperature (degF)	T(m avg)	=	80.2
Avg SQRT(dP)		=	0.851

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	72.28
Stack Gas Water Vapor Proportion	B(wo)	=	0.012
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.71
Abs Stack Pressure (in Hg)	P(s)	=	29.79
Avg Stack Velocity (ft/sec)	V(s avg)	=	48.2
Isokineticity (%)	% I	=	102.5
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	27178
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	27828
Total Chromium Concentration (mg/M3)		=	0.0038
Total Chromium Concentration (mg/M3)		=	0.0586

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	0.880	3.27	63	70	70	0.9381
2	2.5	0.910	3.35	70	74	71	0.9539
3	2.5	0.900	3.32	70	75	71	0.9487
4	2.5	0.920	3.40	70	76	71	0.9592
5	2.5	0.730	2.70	69	77	71	0.8544
6	2.5	0.200	0.74	69	79	72	0.4472
7	2.5	0.820	3.04	70	79	73	0.9055
8	2.5	0.840	3.14	69	82	74	0.9165
9	2.5	0.770	2.87	71	83	74	0.8775
10	2.5	0.760	2.84	70	83	75	0.8718
11	2.5	0.760	2.83	72	84	75	0.8718
12	2.5	0.750	2.78	76	85	76	0.8660
13	2.5	0.750	2.80	72	85	76	0.8660
14	2.5	0.750	2.79	74	85	76	0.8660
15	2.5	0.770	2.85	76	85	76	0.8775
16	2.5	0.800	2.96	78	86	77	0.8944
17	2.5	0.850	3.15	77	86	77	0.9220
18	2.5	0.200	0.74	75	86	78	0.4472
19	2.5	0.700	2.63	70	85	78	0.8367
20	2.5	0.900	3.38	70	85	79	0.9487
21	2.5	0.890	3.35	70	87	79	0.9434
22	2.5	0.880	3.31	70	87	79	0.9381
23	2.5	0.870	3.27	71	87	79	0.9327
24	2.5	0.860	3.23	71	87	80	0.9274
25	2.5	0.900	3.38	72	88	80	0.9487
26	2.5	0.910	3.42	71	88	80	0.9539
27	2.5	0.700	2.63	71	87	81	0.8367
28	2.5	0.200	0.75	71	87	81	0.4472
29	2.5	0.750	2.81	72	87	81	0.8660
30	2.5	0.700	2.63	73	88	81	0.8367
31	2.5	0.610	2.28	75	88	81	0.7810
32	0.7	0.580	2.16	77	88	81	0.7616
TOTALS	78.2	23.81	88.8	2295	2679	2453	27.24247

BOOTH 1 C-5

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/16/93

Performed by: CF
Sample Location: NORTH EXHAUST

Test No./Type: 2/EPA multimetals
Start/Stop Time:

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.243
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	0.9895
Barometric Pressure (in Hg)	P(b)	29.81
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	18
Total Sampling Time (min)	(theta)	(45.00)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		860.76
Gas Meter Final Reading (cu ft)		903.34
Net Gas Sample Volume (cu ft)	V(m)	(42.58)
Vol of Liquid Collected (ml)	Vl(c)	8.9
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.419)
Mass of Total Chromium (ug)		0.0000
Mass of Zinc (ug)		43.0000
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.768
Avg Orifice Meter Reading (in H20)	dH(avg)	=	2.902
Avg Stack Temperature (degF)	T(s avg)	=	77.8
Average Meter Temperature (degF)	T(m avg)	=	90.5
Avg SQRT(dP)		=	0.868

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	40.53
Stack Gas Water Vapor Proportion	B(wo)	=	0.010
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.73
Abs Stack Pressure (in Hg)	P(s)	=	29.79
Avg Stack Velocity (ft/sec)	V(s avg)	=	49.4
Isokineticity (%)	% I	=	97.6
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	27598
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	28527
Total Chromium Concentration (mg/M3)		=	0.0000
Zinc Concentration (mg/M3)		=	0.0375

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	1.000	3.79	78	87	89	1.0000
2	2.5	0.980	3.71	78	87	87	0.9899
3	2.5	0.950	3.61	77	89	88	0.9747
4	2.5	0.750	2.85	77	89	88	0.8660
5	2.5	0.250	0.95	77	89	88	0.5000
6	2.5	0.550	2.09	77	89	88	0.7416
7	2.5	0.600	2.28	78	91	89	0.7746
8	2.5	0.450	1.71	78	93	89	0.6708
9	2.5	0.750	2.87	78	94	90	0.8660
10	2.5	0.800	3.06	78	94	88	0.8944
11	2.5	0.820	3.14	78	94	89	0.9055
12	2.5	0.820	3.14	78	95	89	0.9055
13	2.5	0.850	3.26	78	96	89	0.9220
14	2.5	0.820	2.66	78	96	89	0.9055
15	2.5	0.840	3.22	78	95	89	0.9165
16	2.5	0.900	3.45	78	95	89	0.9487
17	2.5	0.830	3.17	78	94	89	0.9110
18	2.5	0.870	3.27	78	94	90	0.9327
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	45	13.830	52.23	1400	1661	1597	15.6257

BOOTH 1 C.5

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/16/93

Performed by: BKL
Sample Location: SOUTH EXHAUST

Test No./Type: 2/EPA multimetals
Start/Stop Time: 1330-1417

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.242
Pilot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	1.0190
Barometric Pressure (in Hg)	P(b)	29.81
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	19
Total Sampling Time (min)	(theta)	(46.50)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		294.42
Gas Meter Final Reading (cu ft)		336.25
Net Gas Sample Volume (cu ft)	V(m)	(41.82)
Vol of Liquid Collected (ml)	Vl(c)	9.3
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.438)
Mass of Total Chromium (ug)		0.7000
Mass of Zinc (ug)		73.0000
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.679
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	2.520
Avg Stack Temperature (degF)	T(s avg)	=	85.6
Average Meter Temperature (degF)	T(m avg)	=	90.3
Avg SQRT(dP)		=	0.811

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	40.97
Stack Gas Water Vapor Proportion	B(wo)	=	0.011
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.73
Abs Stack Pressure (in Hg)	P(s)	=	29.79
Avg Stack Velocity (ft/sec)	V(s avg)	=	46.5
Isokineticity (%)	% I	=	103.8
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	25591
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	26846
Total Chromium Concentration (mg/M3)		=	0.0006
Zinc Concentration (mg/M3)		=	0.0629

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp (degF) in	Meter (degF) out	SQRT(dP)
1	2.5	0.980	3.62	84	87	87	0.9899
2	2.5	0.960	3.53	86	88	86	0.9798
3	2.5	0.950	3.49	86	88	86	0.9747
4	2.5	0.980	3.59	88	90	86	0.9899
5	2.5	0.690	2.54	87	90	86	0.8307
6	2.5	0.200	0.74	87	92	86	0.4472
7	2.5	0.760	2.80	87	92	86	0.8718
8	2.5	0.740	2.75	84	94	87	0.8602
9	2.5	0.660	2.45	84	94	87	0.8124
10	2.5	0.640	2.38	84	94	88	0.8000
11	2.5	0.630	2.34	86	94	89	0.7937
12	2.5	0.640	2.38	84	94	89	0.8000
13	2.5	0.640	2.38	84	95	89	0.8000
14	2.5	0.650	2.42	85	94	90	0.8062
15	2.5	0.660	2.46	85	95	90	0.8124
16	2.5	0.680	2.53	85	95	90	0.8246
17	2.5	0.700	2.60	86	95	90	0.8367
18	2.5	0.570	2.21	87	95	90	0.7550
19	1.5	0.180	0.67	87	95	90	0.4243
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	46.5	12.91	47.88	1626	1761	1672	15.40955

BOOTH 1

C.5

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/17/93

Performed by: CF
Sample Location: NORTH EXHAUST

Test No./Type: 3/EPA multimetals
Start/Stop Time: 827-927

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.243
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	0.9895
Barometric Pressure (in Hg)	P(b)	29.91
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	24
Total Sampling Time (min)	(theta)	(60.00)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		16.77
Gas Meter Final Reading (cu ft)		72.93
Net Gas Sample Volume (cu ft)	V(m)	(56.15)
Vol of Liquid Collected (ml)	Vl(c)	14.5
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.683)
Mass of Total Chromium (ug)		3.2000
Mass of Zinc (ug)		97.0000
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.783
Avg Orifice Meter Reading (in H20)	dH(avg)	=	2.929
Avg Stack Temperature (degF)	T(s avg)	=	63.1
Average Meter Temperature (degF)	T(m avg)	=	66.4
Avg SQRT(dP)		=	0.876

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	56.09
Stack Gas Water Vapor Proportion	B(wo)	=	0.012
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.71
Abs Stack Pressure (in Hg)	P(s)	=	29.89
Avg Stack Velocity (ft/sec)	V(s avg)	=	49.1
Isokineticity (%)	% I	=	98.9
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	28248
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	28358
Total Chromium Concentration (mg/M3)		=	0.0020
Zinc Concentration (mg/M3)		=	0.0610

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp (degF) in	Meter (degF) out	SQRT(dP)
1	2.5	0.890	3.33	61	63	63	0.9434
2	2.5	0.920	3.43	63	64	63	0.9592
3	2.5	0.890	3.32	62	64	63	0.9434
4	2.5	0.950	3.54	62	64	63	0.9747
5	2.5	0.920	3.45	62	66	63	0.9592
6	2.5	0.350	1.31	62	67	63	0.5916
7	2.5	0.450	1.69	62	67	64	0.6708
8	2.5	0.780	2.92	63	68	64	0.8832
9	2.5	0.820	3.07	63	68	64	0.9055
10	2.5	0.830	3.12	63	70	65	0.9110
11	2.5	0.840	3.16	63	70	65	0.9165
12	2.5	0.810	3.05	63	70	65	0.9000
13	2.5	0.990	3.79	63	70	63	0.9950
14	2.5	0.990	3.79	63	70	63	0.9950
15	2.5	0.960	3.61	63	70	63	0.9798
16	2.5	0.910	3.42	63	70	63	0.9539
17	2.5	0.710	2.67	63	70	63	0.8426
18	2.5	0.250	0.94	63	70	63	0.5000
19	2.5	0.560	2.11	63	70	63	0.7483
20	2.5	0.780	2.92	64	72	65	0.8832
21	2.5	0.750	2.49	65	73	65	0.8660
22	2.5	0.820	3.07	65	73	65	0.9055
23	2.5	0.800	3.00	65	73	65	0.8944
24	2.5	0.820	3.09	65	74	65	0.9055
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	60	18.790	70.29	1514	1656	1531	21.0279

BOOTH 1 C-5

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/17/93

Performed by: BKL
Sample Location: SOUTH EXHAUST

Test No./Type: 3/EPA multimetals
Start/Stop Time: 827-927

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.242
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	1.0190
Barometric Pressure (in Hg)	P(b)	29.91
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	24
Total Sampling Time (min)	(theta)	(60.00)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		427.22
Gas Meter Final Reading (cu ft)		482.38
Net Gas Sample Volume (cu ft)	V(m)	(55.16)
Vol of Liquid Collected (ml)	Vl(c)	15.8
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.744)
Mass of Total Chromium (ug)		2.8000
Mass of Zinc (ug)		73.0000
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.775
Avg Orifice Meter Reading (in H20)	dH(avg)	=	2.884
Avg Stack Temperature (degF)	T(s avg)	=	65.6
Average Meter Temperature (degF)	T(m avg)	=	72.9
Avg SQRT(dP)		=	0.867

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	56.05
Stack Gas Water Vapor Proportion	B(wo)	=	0.013
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.70
Abs Stack Pressure (in Hg)	P(s)	=	29.89
Avg Stack Velocity (ft/sec)	V(s avg)	=	48.7
Isokineticity (%)	% I	=	101.1
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	27647
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	28121
Total Chromium Concentration (mg/M3)		=	0.0018
Zinc Concentration (mg/M3)		=	0.0460

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	1.100	4.08	64	69	69	1.0488
2	2.5	1.100	4.08	64	70	68	1.0488
3	2.5	1.100	4.07	65	70	67	1.0488
4	2.5	1.000	3.70	65	71	67	1.0000
5	2.5	0.720	2.67	65	72	68	0.8485
6	2.5	0.200	0.74	65	73	70	0.4472
7	2.5	0.720	2.67	65	72	69	0.8485
8	2.5	0.800	2.98	65	75	69	0.8944
9	2.5	0.770	2.87	65	76	70	0.8775
10	2.5	0.750	2.79	65	76	70	0.8660
11	2.5	0.740	2.75	66	76	70	0.8602
12	2.5	0.740	2.75	66	77	69	0.8602
13	2.5	0.730	2.72	66	76	70	0.8544
14	2.5	0.740	2.76	66	76	71	0.8602
15	2.5	0.730	2.72	66	76	71	0.8544
16	2.5	0.730	2.72	66	77	71	0.8544
17	2.5	0.800	2.98	67	78	72	0.8944
18	2.5	0.760	2.84	66	78	72	0.8718
19	2.5	0.150	0.60	66	78	72	0.3873
20	2.5	0.550	2.01	65	78	72	0.7416
21	2.5	0.830	3.10	66	78	72	0.9110
22	2.5	0.960	3.58	67	79	73	0.9798
23	2.5	0.950	3.55	67	80	72	0.9747
24	2.5	0.930	3.48	67	79	73	0.9644
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	60	18.6	69.21	1575	1810	1687	20.79755

TEST: METALS # 1
DATE: 11/18/93 AM
METHOD: NIOSH 7300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8564

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/11/94

CHROME (mg/M3)

Stack 1 - Left	Stack 1 - Right
0.00870	0.01747

Stack 2 - Left	Stack 2 - Right
0.00929	0.00241

A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
0.088	0.059	0.033	0.008	0.005	0.020	0.027	0.021	0.034	0.004	0.006	0.017
A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24
0.076	0.051	0.022	0.018	0.019	0.060	2.044	6.660	0.103	0.055	1.827	0.023
			0.025					0.074			
A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36
0.112	0.076	0.041	0.072	0.159	0.321	0.942	0.420	20.010	15.365	1.391	0.054
										6.592	
A37	A38	A39	A40	A41	A42	A43	A44	A45	A46	A47	A48
0.154	0.130	0.307	3.904	0.127	0.151	0.193	0.148	0.241	0.132	7.340	0.147
		0.134									

Painter 1	Painter 2
0.084	No Sample

Filter Blank
0.6
(ug/filter)

C-51

TEST: METALS # 2
DATE: 11/18/93 PM
METHOD: NIOSH 7300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8564

D E Initials: ljl
Q A Initials:
Print Date: 04/12/94

CHROME (mg/M3)

Stack 1 - Left	Stack 1 - Right
0.01069	0.01259

Stack 2 - Left	Stack 2 - Right
0.00254	0.01032

A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
0.132	0.080	0.058	0.016	0.009	0.017	0.016	3.953	0.169	1.052	0.008	0.006
A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24
0.135	0.050	0.031	0.023 0.016	2.590	0.057	0.084	0.018	0.016 0.131	0.055	0.018	0.005
A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36
0.164	0.098	0.057	0.044	0.027	0.074	0.029	0.148	0.043	0.076	0.057 0.012	0.004
A37	A38	A39	A40	A41	A42	A43	A44	A45	A46	A47	A48
0.212	0.109	0.091 0.108	0.060	0.063	0.035	0.146	0.098	0.091	0.198	0.020	0.004

Painter 1	Painter 2
0.105	0.024

Filter Blank
No Sample
(ug/filter)

TEST: METALS # 3
DATE: 11/19/93 AM
METHOD: NIOSH 7300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8564

D E Initials: ljl
Q A Initials:
Print Date: 12/08/93

CHROME (mg/M3)

Stack 1 - Left	Stack 1 - Right
0.00310	0.00238

Stack 2 - Left	Stack 2 - Right
0.00240	0.00155

A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
0.039	0.027	0.017	0.014	0.009	0.090	0.058	1.247	0.037	0.010	0.166	0.003
A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24
0.031	0.045	0.332	0.658	0.658	4.038	5.909	0.045	11.051	2.371	0.088	0.004
			0.008					0.439			
A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36
0.039	0.027	1.000	0.377	5.267	0.253	0.453	0.219	0.178	0.060	0.021	0.005
										0.013	
A37	A38	A39	A40	A41	A42	A43	A44	A45	A46	A47	A48
0.058	0.041	0.043	0.830	0.257	0.279	0.383	0.143	0.703	0.172	0.031	0.004
		0.045									

Painter 1	Painter 2
0.016	0.012

Filter Blank
No Sample
(ug/filter)

C-5

TEST: METALS # 1
DATE: 11/18/93 AM
METHOD: NIOSH 7300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8564

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/11/94

BOOTH Temperature: 74 P Barr: 30.59

GRID LOC	FILTER NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	CHROME (ug)	VOL (L) @ STP	CHROME (mg/M3)
A1	148	63	5	2040	1890	901479	11	125.1	8.8E-02
A2	128	62	26	2055	2023	901480	7.5	127.8	5.9E-02
A3	134	62	4	2035	1920	901418	4.1	123.9	3.3E-02
A4	147	63	11	2049	2140	901419	1.1	133.4	8.2E-03
A5	132	63	56	2074	2013	901420	0.7	130.1	5.4E-03
A6	146	64	27	2073	2017	901421	2.7	132.3	2.0E-02
A7	116	64	50	2053	1987	901422	3.5	130.7	2.7E-02
A8	121	65	17	2020	2072	901423	2.8	134.4	2.1E-02
A9	111	65	71	2001	1975	901424	4.5	130.6	3.4E-02
A10	60	66	47	2032	2052	901425	0.5	136.2	3.7E-03
A11	59	67	73	2065	2073	1	0.8	140.1	5.7E-03
A12	58	67	72	2068	2063	2	2.4	139.9	1.7E-02
A13	101	63	1	1964	1981	3	9.6	125.6	7.6E-02
A14	149	63	23	2070	2000	4	6.6	129.6	5.1E-02
A15	139	52	40	1986	1921	5	2.3	102.7	2.2E-02
A16	62	63	66	1952	1986	6	2.2	125.4	1.8E-02
A17	104	63	36	2124	2073	7	2.5	133.6	1.9E-02
A18	113	64	32	2048	2036	8	7.9	132.1	6.0E-02
A19	71	64	54	2040	2044	9	270	132.1	2.0E+00
A20	57	65	65	1975	2001	10	870	130.6	6.7E+00
A21	64	65	20	2045	2100	11	14	136.2	1.0E-01
A22	61	66	37	2073	2040	12	7.5	137.2	5.5E-02
A23	120	67	46	1945	2096	13	250	136.8	1.8E+00
A24	119	68	18	2027	2059	14	3.2	140.4	2.3E-02
A25	102	63	38	1994	1947	15	14	125.5	1.1E-01
A26	103	62	31	2029	1991	16	9.6	126.0	7.6E-02
A27	144	63	8	2029	1969	17	5.2	127.3	4.1E-02
A28	109	64	41	2087	2001	18	9.5	132.2	7.2E-02
A29	105	63	34	2105	2055	19	21	132.5	1.6E-01
A30	115	64	57	2129	2113	20	44	137.2	3.2E-01
A31	70	64	35	2186	2080	21	130	138.0	9.4E-01
A32	65	64	61	2043	2005	22	55	130.9	4.2E-01
A33	72	65	75	2079	2028	24	2700	134.9	2.0E+01
A34	117	66	60	2045	2052	25	2100	136.7	1.5E+01
A35	125	66	12	2061	2033	26	190	136.6	1.4E+00
A36	124	68	68	2025	2023	27	7.5	139.1	5.4E-02
A37	107	63	49	2055	2012	28	20	129.5	1.5E-01
A38	106	62	24	1987	1928	29	16	122.7	1.3E-01
A39	137	63	43	1959	2035	30	39	127.2	3.1E-01
A40	110	63	2	2065	2037	31	510	130.6	3.9E+00
A41	112	64	55	2097	2047	32	17	134.1	1.3E-01
A42	114	64	59	2076	2009	33	20	132.1	1.5E-01
A43	66	64	25	2101	2063	34	26	134.7	1.9E-01
A44	67	65	19	2032	2093	35	20	135.5	1.5E-01
A45	63	66	29	2079	2032	2131	33	137.1	2.4E-01
A46	118	66	63	2052	2035	2132	18	136.3	1.3E-01
A47	123	67	69	1988	2035	2133	1000	136.2	7.3E+00
A48	122	68	16	2052	2116	2134	21	143.3	1.5E-01
A16 Dup	108	63	15	2020	1967	2135	3.2	127.0	2.5E-02
A35 Dup	68	65	28	2012	2005	2136	870	132.0	6.6E+00
A21 Dup	55	65	70	2058	2070	2137	10	135.6	7.4E-02
A39 Dup	150	63	10	1987	2007	2138	17	127.2	1.3E-01
BLANK	142	65	NA	NA	NA	2139	0.6	0.0	NA
Painter 1 (prim	127	59	58	2055	1950	2140	10	119.4	8.4E-02
Painter 2 (top)	130	0	33	2076	2061	2141	5.3	0.0	No Sample
South-R	69	61	13	2066	2016	2142	2.2	125.9	1.7E-02
South-L	74	61	7	2051	2047	2143	1.1	126.4	8.7E-03
North-R	75	61	3	2048	1980	2144	0.3	124.2	2.4E-03
North-L	73	61	6	2070	2119	2145	1.2	129.2	9.3E-03

C-5

TEST:	METALS # 2	BARSTOW MCLB	D E Initials: ljl
DATE:	11/18/93 PM	AREA 11 TESTS	Q A Initials: 0
METHOD:	NIOSH 7300	ACUREX PROJECT 8564	Print Date: 04/12/94

BOOTH Temperature: 78 P Barr: 30.59

GRID LOC	FILTER NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	CHROME (ug)	VOL (L) @ STP	CHROME (mg/M3)
A1	192	59	37	2040	2068	2146	16	121.6	1.3E-01
A2	165	59	16	2116	2093	2147	10	124.6	8.0E-02
A3	166	60	20	2100	2100	2148	7.3	126.4	5.8E-02
A4	167	60	54	2044	2025	2149	1.9	122.5	1.6E-02
A5	154	61	72	2063	2070	2150	1.1	126.5	8.7E-03
A6	173	62	66	1986	1952	2151	2.1	122.5	1.7E-02
A7	171	62	11	2140	2141	2152	2.1	133.2	1.6E-02
A8	172	63	41	2001	2001	2153	500	126.5	4.0E+00
A9	175	63	34	2055	2054	2154	22	129.9	1.7E-01
A10	189	64	36	2073	2070	2155	140	133.0	1.1E+00
A11	174	66	49	2012	1982	2156	1.1	132.2	8.3E-03
A12	161	65	27	2017	1995	2157	0.8	130.8	6.1E-03
A13	86	59	61	2005	2009	2158	16	118.8	1.3E-01
A14	100	59	19	2093	2068	2159	6.2	123.2	5.0E-02
A15	78	59	70	2070	2075	2160	3.8	122.7	3.1E-02
A16	87	60	17	2072	2063	931126	2.9	124.5	2.3E-02
A17	93	60	60	2052	2052	931127	320	123.5	2.6E+00
A18	82	62	15	1967	1986	931128	7.0	123.0	5.7E-02
A19	84	60	4	1970	1962	931129	10	118.4	8.4E-02
A20	143	62	2	2037	2004	931130	2.3	125.7	1.8E-02
A21	133	63	40	1921	1900	931131	1.9	120.8	1.6E-02
A22	99	64	56	2013	2037	931132	7.2	130.0	5.5E-02
A23	135	65	23	2000	2013	931133	2.4	130.9	1.8E-02
A24	196	65	55	2047	2061	931134	0.7	134.0	5.2E-03
A25	91	57	12	2033	2020	931135	19	115.9	1.6E-01
A26	95	59	18	2059	2066	931136	12	122.1	9.8E-02
A27	85	59	71	1975	1982	931137	6.7	117.1	5.7E-02
A28	145	60	47	2052	2075	931138	5.5	124.2	4.4E-02
A29	94	60	25	2063	2061	931139	3.4	124.1	2.7E-02
A30	90	62	46	2096	2011	931140	9.5	127.7	7.4E-02
A31	131	61	69	2035	2016	931141	3.6	124.0	2.9E-02
A32	138	62	43	2035	2083	931142	19	128.1	1.5E-01
A33	140	63	1	1981	1967	931143	5.4	124.8	4.3E-02
A34	92	64	24	1928	1926	931144	9.4	123.7	7.6E-02
A35	97	65	26	2023	2037	931145	7.5	132.4	5.7E-02
A36	191	65	33	2061	2094	931146	0.6	135.5	4.4E-03
A37	81	59	50	1987	1990	931147	25	117.7	2.1E-01
A38	76	59	65	2001	2013	931148	13	118.8	1.1E-01
A39	79	60	28	2005	2001	931149	11	120.6	9.1E-02
A40	88	60	73	2073	2070	931150	7.5	124.7	6.0E-02
A41	77	61	75	2028	2041	931151	7.8	124.5	6.3E-02
A42	98	61	8	1969	1957	931152	4.2	120.1	3.5E-02
A43	89	61	10	2007	2009	931153	18	122.9	1.5E-01
A44	136	63	38	1947	1926	931154	12	122.4	9.8E-02
A45	126	64	5	1890	1892	931155	11	121.4	9.1E-02
A46	141	64	32	2036	2050	931156	26	131.2	2.0E-01
A47	169	64	58	1950	2015	931157	2.5	127.3	2.0E-02
A48	197	65	57	2113	2090	931158	0.6	137.1	4.4E-03
A16 Dup	80	60	35	2080	2082	931159	2.0	125.3	1.6E-02
A35 Dup	96	65	31	1991	1990	931160	1.6	129.8	1.2E-02
A21 Dup	155	64	59	2009	2035	931161	17	129.8	1.3E-01
A39 Dup	83	59	68	2023	2040	931162	13	120.3	1.1E-01
Painter 1 (prim	168	56	63	2035	2019	931164	12	113.9	1.1E-01
Painter 2 (top)	162	56	29	2032	2012	931165	2.7	113.6	2.4E-02
South-R	157	55	7	2047	1981	931166	1.4	111.1	1.3E-02
South-L	181	55	13	2016	2052	931167	1.2	112.2	1.1E-02
North-R	153	39	3	1980	1980	931168	0.8	77.5	1.0E-02
North-L	159	55	6	2119	2153	931169	0.3	117.9	2.5E-03

C-5

TEST: METALS # 3
DATE: 11/19/93 AM
METHOD: NIOSH 7300

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8564

D E Initials: ljl
Q A Initials: 0
Print Date: 12/08/93

BOOTH Temperature: 74 P Barr: 30.59

GRID LOC	FILTER NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	CHROME (ug)	VOL (L) @ STP	CHROME (mg/M3)
A1	207	67	75	2027	2017	931170	5.3	137.0	3.9E-02
A2	203	68	44	2094	1967	931171	3.8	139.6	2.7E-02
A3	212	68	67	1991	2027	931172	2.4	138.1	1.7E-02
A4	240	69	50	2054	1991	931173	2.0	141.1	1.4E-02
A5	229	69	71	1985	1970	931174	1.2	137.9	8.7E-03
A6	243	69	60	2066	2059	931175	13	143.9	9.0E-02
A7	246	70	37	2086	2050	931176	8.5	146.3	5.8E-02
A8	249	70	36	2060	2021	931177	180	144.4	1.2E+00
A9	250	71	19	2027	2040	931178	5.4	146.0	3.7E-02
A10	234	70	16	2080	2082	931179	1.5	147.3	1.0E-02
A11	226	71	4	2054	1980	931180	24	144.8	1.7E-01
A12	228	72	31	2028	1978	931181	0.5	145.8	3.4E-03
A13	156	69	20	2048	2083	931182	4.4	144.1	3.1E-02
A14	160	68	66	2078	2043	931183	6.4	141.6	4.5E-02
A15	186	68	38	1994	1950	931184	45	135.6	3.3E-01
A16	180	69	28	2007	2003	931185	92	139.9	6.6E-01
A17	200	69	63	2076	2021	931186	94	142.9	6.6E-01
A18	188	69	56	2087	2031	931187	580	143.6	4.0E+00
A19	194	70	34	2100	2061	931188	870	147.2	5.9E+00
A20	176	68	12	2088	2011	931189	6.3	140.9	4.5E-02
A21	219	70	10	2009	2083	931190	1600	144.8	1.1E+01
A22	202	72	49	2033	2023	931191	350	147.6	2.4E+00
A23	201	71	72	2074	2059	931192	13	148.3	8.8E-02
A24	205	72	54	2058	2031	931193	0.6	148.8	4.0E-03
A25	152	68	13	2090	2012	931194	5.5	141.0	3.9E-02
A26	170	68	5	2065	1995	931195	3.7	139.5	2.7E-02
A27	158	68	58	2052	2020	931196	140	140.0	1.0E+00
A28	193	69	33	2088	2093	931197	55	145.8	3.8E-01
A29	187	69	35	2146	2100	931198	780	148.1	5.3E+00
A30	199	69	61	2045	2032	931199	36	142.2	2.5E-01
A31	164	69	30	2101	2017	931200	65	143.6	4.5E-01
A32	185	70	64	1991	2005	901165	31	141.4	2.2E-01
A33	195	71	65	1940	1968	901167	25	140.2	1.8E-01
A34	214	70	7	2015	1958	901168	8.4	140.6	6.0E-02
A35	204	71	47	2080	2079	901169	3.2	149.3	2.1E-02
A36	222	72	26	2076	2027	901170	0.7	149.3	4.7E-03
A37	184	68	2	1942	1856	901171	7.6	130.5	5.8E-02
A38	163	67	73	2051	2030	901172	5.7	138.2	4.1E-02
A39	151	68	32	2081	2054	901173	6.1	142.1	4.3E-02
A40	183	69	55	2080	2066	901174	120	144.6	8.3E-01
A41	178	69	17	1970	2041	901175	36	139.9	2.6E-01
A42	182	69	59	2087	2028	901176	40	143.5	2.8E-01
A43	190	69	27	2048	1997	901177	54	141.1	3.8E-01
A44	198	70	11	2073	2082	901178	21	147.0	1.4E-01
A45	216	71	1	1974	1987	901179	100	142.1	7.0E-01
A46	209	71	18	2016	2030	901180	25	145.2	1.7E-01
A47	206	73	48	2065	2015	901181	4.6	150.5	3.1E-02
A48	221	72	24	1970	1942	901182	0.5	142.4	3.5E-03
A16 Dup	179	68	57	2096	2043	901183	1.1	142.3	7.7E-03
A35 Dup	218	72	40	2011	1914	901184	1.9	142.8	1.3E-02
A21 Dup	220	70	8	2058	1995	901185	63	143.4	4.4E-01
A39 Dup	177	68	25	2105	2062	901186	6.5	143.2	4.5E-02
Painter 1 (prim	211	63	23	2036	2012	901188	2.1	128.9	1.6E-02
Painter 2 (top)	217	65	29	2007	2003	901189	1.6	131.7	1.2E-02
South-R	208	62	68	2009	1999	901190	0.3	125.6	2.4E-03
South-L	213	62	41	2089	2017	901191	0.4	128.7	3.1E-03
North-R	224	62	70	2065	2047	901192	0.2	128.9	1.6E-03
North-L	215	62	69	1985	1992	901193	0.3	124.6	2.4E-03

TEST: ISOCYANATES # 1
DATE: 09/15/93 AM
METHOD: OSHA 42

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/12/94

ISOCYANATES (mg/M3)

R1 < 0.00060	R2 < 0.00057	R3 < 0.00057
R4 no sample	R5 0.0014	R6 0.0015
R7 0.0015	R8 0.0028	R9 0.0013 * 0.0028
R10 0.0029	R11 0.0073	R12 0.0057
R13 0.0044	R14 0.0091	R15 0.0079
R16 0.0029	R17 0.0043	R18 0.0007

Painter 1
0.0064

Painter 2
0.0015

North Stack
< 0.0067

South Stack
< 0.0062

Filter Blank
< 0.04
ug/filter

Imp. Blanks
< 0.4
< 0.4
ug/impinger

L3 < 0.00055	L2 0.00070	L1 0.0012
L6 0.0027 0.0028	L5 0.0042	L4 0.0027
L9 0.0041	L8 0.0078	L7 0.0041
L12 0.0075	L11 0.0042 0.0082	L10 0.012
L15 0.0088	L14 0.014	L13 0.011
L18 0.0028	L17 0.0066	L16 no sample

C.6

TEST: ISOCYANATES # 2
DATE: 09/15/93 PM
METHOD: OSHA 42

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/12/94

ISOCYANATES (mg/M3)

R1 < 0.00070	R2 < 0.00070	R3 < 0.00072
R4 0.0012	R5 0.0017	R6 0.0014
R7 0.0018	R8 0.0018	R9 0.0014 0.0120
R10 0.0036	R11 0.0034	R12 0.0017
R13 0.0037	R14 0.0034	R15 0.0035
R16 0.0018	R17 0.0035	R18 0.0011

Painter 1
0.0037

Painter 2
0.0038

North Stack
< 0.0080

South Stack
< 0.0077

Filter Blank
< 0.04
ug/filter

L3 < 0.00066	L2 < 0.00066	L1 < 0.00069
L6 < 0.00068 0.00099	L5 0.0017	L4 < 0.00069
L9 0.0016	L8 0.0018	L7 0.0036
L12 0.0017	L11 0.0018 0.0018	L10 no sample
L15 0.0035	L14 0.0051	L13 0.0034
L18 0.0007	L17 0.0034	L16 0.0050

TEST: ISOCYANATES # 3
DATE: 09/15/93 NITE
METHOD: OSHA 42

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/12/94

ISOCYANATES (mg/M3)

R1	R2	R3
< 0.00075	< 0.00076	< 0.00076
R4	R5	R6
0.0017	0.00094	< 0.00075
R7	R8	R9
0.0018	No Data	< 0.00077 *0.0015
R10	R11	R12
0.0039	0.0053	0.0038
R13	R14	R15
0.0054	0.0055	0.0057
R16	R17	R18
0.0056	0.0056	0.0038

Painter 1
0.0042

Painter 2
0.0042

North Stack
< 0.0095
< 0.0091

South Stack
< 0.0088

Filter Blank
< 0.04
ug/filter

L3	L2	L1
0.00095	0.00078	0.0018
L6	L5	L4
0.0039 0.0038	0.0019	0.0038
L9	L8	L7
0.0039	0.0059	0.0075
L12	L11	L10
0.0038	0.0059 0.0059	0.0083
L15	L14	L13
0.0057	0.0038	0.0078
L18	L17	L16
0.0038	0.0057	0.0094

TEST: ISOCYANATES # 1
DATE: 09/15/93 AM
METHOD: OSHA 42

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/12/94

BOOTH Temperature: 70 P Barr: 29.95

GRID LOC	FILTER NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	HDI (ug)	VOL (L) @ STP	HDI (mg/M3)
L3	131	71	25	1009	1038	930861 <	0.04	72.47 <	5.5E-04
L2	132	71	40	985.5	1042	930860	0.05	71.78	7.0E-04
L1	124	72	22	1017	1041	930859	0.09	73.88	1.2E-03
L6	127	71	23	1008	1053	930864	0.2	72.96	2.7E-03
L5	122	71	38	1008	1013	830863	0.3	71.55	4.2E-03
L4	125	72	21	1004	1062	930862	0.2	74.17	2.7E-03
L9	129	71	41	1025	1039	930867	0.3	73.07	4.1E-03
L8	121	71	7	1014	1023	930866	0.56	72.11	7.8E-03
L7	123	72	14	1020	1020	930865	0.3	73.24	4.1E-03
L12	130	70	13	1036	1068	930870	0.55	73.44	7.5E-03
L11	117	71	44	1013	998.4	930869	0.3	71.21	4.2E-03
L10	120	72	45	1018	1045	930868	0.87	74.06	1.2E-02
L15	102	71	31	1004	1073	930873	0.65	73.53	8.8E-03
L14	118	71	19	994.3	1027	930872	1.0	71.56	1.4E-02
L13	119	72	34	1019	1071	930871	0.8	75.03	1.1E-02
L18	101	70	27	1018	1049	930876	0.2	72.14	2.8E-03
L17	99	71	39	999.3	1025	930875	0.47	71.66	6.6E-03
L16	100	0	36	996.6	1083	930874	0.68	0.00	no sample
PAINTER 1	134	65	47	1016	1024	930880	0.42	66.12	6.4E-03
PAINTER 2	133	65	48	1029	1037	930881	0.1	66.96	1.5E-03
L6 Dup	128	71	28	999.8	1027	930878	0.2	71.75	2.8E-03
L11 Dup	116	72	9	1030	1020	930877	0.6	73.60	8.2E-03
R1	126	68	30	972	994.1	930841 <	0.04	66.66 <	6.0E-04
R2	110	69	10	1009	1048	930842 <	0.04	70.77 <	5.7E-04
R3	109	69	16	1002	1053	930843 <	0.04	70.70 <	5.7E-04
R4	112	0	29	1003	1036	930844	0.1	0.00	no sample
R5	114	68	17	997.8	1037	930845	0.1	68.99	1.4E-03
R6	113	69	32	976.9	986.8	930846	0.1	67.56	1.5E-03
R7	108	68	18	998	1027	930847	0.1	68.66	1.5E-03
R8	106	69	46	1012	1046	930848	0.2	70.80	2.8E-03
R9	107	69	26	1019	1054	930849	0.09	71.32	1.3E-03
R10	105	68	24	995.1	1070	930850	0.2	70.02	2.9E-03
R11	104	68	5	1013	1041	930851	0.51	69.64	7.3E-03
R12	103	69	37	1007	1044	930852	0.4	70.56	5.7E-03
R13	93	68	33	1009	989.1	930853	0.3	67.75	4.4E-03
R14	94	69	11	1014	1038	930854	0.64	70.60	9.1E-03
R15	95	69	43	997.5	1022	930855	0.55	69.48	7.9E-03
R16	96	68	20	985.3	1019	930856	0.2	67.96	2.9E-03
R17	98	68	8	1004	1035	930857	0.3	69.13	4.3E-03
R18	97	69	35	1020	987.3	930858	0.05	69.06	7.2E-04
NORTH STK	impinger	64	A	937.9	934.6 *	931052 <	0.4	59.75 <	6.7E-03
SOUTH STK	impinger	65	C	994.6	1001	931053 <	0.4	64.68 <	6.2E-03
R9 Dup	111	69	42	1009	1077	930879	0.2	71.77	2.8E-03
Field Blank	impinger	NA	NA	NA	NA	931054 <	0.4	NA	NA
Sol'n Blank	impinger	NA	NA	NA	NA	931056 <	0.4	NA	NA
BLANK	88	NA	NA	NA	NA	930962 <	0.04	NA	NA

C.6

TEST: ISOCYANATES # 2
DATE: 09/15/93 PM
METHOD: OSHA 42

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/12/94

BOOTH Temperature: 83 P Barr: 29.95

GRID LOC	FILTER NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #		HDI (ug)	VOL (L) @ STP		HDI (mg/M3)
L3	14	59	27	1049	1054	930902	<	0.04	60.39	<	6.6E-04
L2	25	59	22	1041	1059	930901	<	0.04	60.30	<	6.6E-04
L1	142	57	41	1039	1045	930900	<	0.04	57.81	<	6.9E-04
L6	3	59	18	1027	1035	930904	<	0.04	59.21	<	6.8E-04
L5	22	58	7	1023	1026	930903		0.1	57.84		1.7E-03
L4	137	57	11	1038	1037	930902B	<	0.04	57.56	<	6.9E-04
L9	115	59	13	1068	1074	930906B		0.1	61.51		1.6E-03
L8	1	58	35	987.3	1018	930906		0.1	56.60		1.8E-03
L7	23	56	20	1019	1040	930905		0.2	56.12		3.6E-03
L12	18	58	38	1013	1024	930909		0.1	57.50		1.7E-03
L11	6	58	32	986.8	995.5	930908		0.1	55.95		1.8E-03
L10	5	0	46	1046	1062	930907		0.2	0.00		no sample
L15	144	59	33	979.1	990.8	930912		0.2	56.56		3.5E-03
L14	143	58	25	1038	1034	930911		0.3	58.49		5.1E-03
L13	10	57	16	1053	1052	930910		0.2	58.39		3.4E-03
L18	8	59	9	1020	1026	930915		0.04	58.75		6.8E-04
L17	17	58	5	1041	1051	930914		0.2	59.05		3.4E-03
L16	29	57	42	1077	1074	930913		0.3	59.67		5.0E-03
PAINTER 1	16	53	48	1037	1042	930919		0.2	53.63		3.7E-03
PAINTER 2	135	53	47	1024	1035	930920		0.2	53.11		3.8E-03
L6 Dup	19	60	39	1025	1044	930917		0.06	60.42		9.9E-04
L11 Dup	9	58	44	998.4	992.5	930918		0.1	56.20		1.8E-03
R1	7	56	37	1044	1042	930882	<	0.04	56.85	<	7.0E-04
R2	30	56	40	1042	1047	930883	<	0.04	56.93	<	7.0E-04
R3	34	56	43	1022	1016	930884	<	0.04	55.54	<	7.2E-04
R4	15	55	24	1070	1040	930885		0.07	56.48		1.2E-03
R5	139	55	36	1083	1068	930886		0.1	57.58		1.7E-03
R6	136	56	29	1036	1036	930887		0.08	56.47		1.4E-03
R7	140	55	8	1035	1051	930888		0.1	55.84		1.8E-03
R8	24	55	19	1027	1075	930889		0.1	56.26		1.8E-03
R9	138	56	26	1054	1055	930890		0.08	57.48		1.4E-03
R10	4	55	28	1027	1032	930891		0.2	55.11		3.6E-03
R11	12	56	31	1073	1072	930892		0.2	58.46		3.4E-03
R12	2	56	10	1048	1063	930893		0.1	57.53		1.7E-03
R13	11	56	30	994.1	993.4	930894		0.2	54.17		3.7E-03
R14	27	56	34	1071	1072	930895		0.2	58.40		3.4E-03
R15	21	56	45	1045	1053	930896		0.2	57.18		3.5E-03
R16	20	55	21	1062	1068	930897		0.1	57.01		1.8E-03
R17	26	56	23	1053	1052	930898		0.2	57.37		3.5E-03
R18	28	56	14	1020	1018 *	930899		0.06	55.54		1.1E-03
NORTH STK	impinger	52	D	1004	967.6	931058	<	0.4	49.90	<	8.0E-03
SOUTH STK	impinger	53	C	1001	1011	931059	<	0.4	51.90	<	7.7E-03
R9 Dup	13	56	17	1037	1017	930916		0.67	55.98		1.2E-02
BLANK	85	NA	NA	NA	NA	930963	<	0.04	NA		NA

C.6

TEST: ISOCYANATES # 3
DATE: 09/15/93 NITE
METHOD: OSHA 42

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/12/94

BOOTH Temperature: 83 P Barr: 29.95

GRID LOC	FILTER NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	HDI (ug)	VOL (L) @ STP	HDI (mg/M3)
L3	37	51	42	1047	1073	930941	0.05	52.62	9.5E-04
L2	38	52	35	1018	1017	930940	0.04	51.50	7.8E-04
L1	55	52	36	1068	1085	930939	0.1	54.49	1.8E-03
L6	40	51	22	1059	1023	930944	0.2	51.68	3.9E-03
L5	41	52	38	1024	1013	930943	0.1	51.55	1.9E-03
L4	39	52	41	1045	1046	930942	0.2	52.92	3.8E-03
L9	56	51	5	1051	1031	930947	0.2	51.68	3.9E-03
L8	57	51	14	1018	1028	930946	0.3	50.78	5.9E-03
L7	58	52	23	1052	1066	930945	0.4	53.60	7.5E-03
L12	74	51	46	1062	1043	930950	0.2	52.25	3.8E-03
L11	69	51	25	1034	1024	930949	0.3	51.08	5.9E-03
L10	77	52	44	9925	1009	930948	0.42	50.65	8.3E-03
L15	75	51	13	1074	1060	930953	0.3	52.97	5.7E-03
L14	73	51	16	1052	1044	930952	0.2	52.02	3.8E-03
L13	67	51	11	1037	1034	930951	0.4	51.40	7.8E-03
L18	76	51	31	1072	1059	930956	0.2	52.89	3.8E-03
L17	60	51	24	1040	1080	930955	0.3	52.62	5.7E-03
L16	59	51	37	1042	1059	930954	0.49	52.15	9.4E-03
PAINTER 1	70	47	48	1042	1026	930957	0.2	47.30	4.2E-03
PAINTER 2	68	48	47	1035	1026	930958	0.2	48.15	4.2E-03
L6 Dup	42	51	45	1053	1055	930959	0.2	52.32	3.8E-03
L11 Dup	78	51	7	1026	1015	930960	0.3	50.66	5.9E-03
R1	47	53	18	1035	1034	930921	< 0.04	53.37	< 7.5E-04
R2	32	53	39	1044	998.8	930922	< 0.04	52.69	< 7.6E-04
R3	31	52	29	1036	1055	930923	< 0.04	52.92	< 7.6E-04
R4	46	53	26	1055	1052	930924	0.09	54.35	1.7E-03
R5	36	53	17	1017	1049	930925	0.05	53.29	9.4E-04
R6	33	52	19	1075	1043	930926	< 0.04	53.60	< 7.5E-04
R7	48	53	33	990.8	984.3	930927	0.09	50.95	1.8E-03
R8	45	52	10	1063	1064	930928	No Data	53.83	No Data
R9	44	52	28	1032	1016	930929	< 0.04	51.83	< 7.7E-04
R10	90	53	32	995.5	1012	930930	0.2	51.78	3.9E-03
R11	89	52	34	1072	1156	930931	0.3	56.38	5.3E-03
R12	87	54	30	993.4	996.1	930932	0.2	52.28	3.8E-03
R13	82	53	21	1068	1074	930933	0.3	55.25	5.4E-03
R14	81	54	9	1026	1061	930934	0.3	54.85	5.5E-03
R15	79	54	43	1016	1004	930935	0.3	53.09	5.7E-03
R16	83	53	40	1047	1045	930936	0.3	53.96	5.6E-03
R17	84	53	8	1051	1039	930937	0.3	53.91	5.6E-03
R18	80	53	20	1040	1025	930938	0.2	53.26	3.8E-03
NORTH STK	impinger	47	A	.931	910.9	931060	< 0.4	42.13	< 9.5E-03
North Stk Dup	impinger	47	D	967.6	945.2	931061	< 0.4	43.75	< 9.1E-03
SOUTH STK	impinger	47	C	1011	973.2	931062	< 0.4	45.39	< 8.8E-03
R9 Dup	43	52	27	1054	1031	930961	0.08	52.77	1.5E-03
BLANK	86	NA	NA	NA	NA	930964	< 0.04	NA	NA

TEST: PARTICULATE # 1
DATE: 09/14/93 AM
METHOD: NIOSH 500

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials:
Print Date: 04/04/94

PARTICULATE (mg/M3)

R1 2.6	R2 0.8	R3 0.5
R4 1.8	R5 3.3	R6 4.0
R7 2.3	R8 4.5	R9 7.2 7.0
R10 11.5	R11 13.8	R12 15.3
R13 21.2	R14 30.4	R15 17.8
R16 13.7	R17 24.1	R18 17.9

Painter 1 18.8

Painter 2 16.5

North Stack 3.2

South Stack 1.9

Blanks

mg/filter

L3 1.5	L2 1.1	L1 1.2
L6 7.0 11.8	L5 14.8	L4 6.8
L9 17.7	L8 25.0	L7 21.1
L12 18.3	L11 23.6 30.7	L10 25.7
L15 30.0	L14 34.7	L13 24.0
L18 10.0	L17 27.5	L16 37.2

C.7

TEST: PARTICULATE # 2
DATE: 09/14/93 PM
METHOD: NIOSH 500

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials:
Print Date: 04/11/94

PARTICULATE (mg/M3)

R1 4.2	R2 3.3	R3 1.6
R4 5.3	R5 8.1	R6 7.7
R7 5.3	R8 14.4	R9 7.1 18.3
R10 22.6	R11 30.8	R12 25.4
R13 45.3	R14 46.9	R15 35.1
R16 27.1	R17 30.1	R18 16.0

Painter 1
28.3

Painter 2
26.5

North Stack
1.8

South Stack
1.7

Blanks
0.03
0.04
0.03
mg/filter

L3 1.5	L2 0.2	L1 0.7
L6 11.1 10.6	L5 9.3	L4 6.4
L9 16.0	L8 26.2	L7 16.0
L12 27.8	L11 27.2 30.0	L10 27.6
L15 36.3	L14 29.5	L13 27.5
L18 17.2	L17 50.2	L16 44.4

C.4

TEST: PARTICULATE # 3
DATE: 09/16/93 NITE
METHOD: NIOSH 500

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials:
Print Date: 04/11/94

PARTICULATE (mg/M3)

R1 7.7	R2 7.7	R3 6.7
R4 8.0	R5 35.2	R6 28.5
R7 22.1	R8 48.7	R9 45.8, 42.8
R10 34.8	R11 47.7	R12 60.9
R13 69.3	R14 131.5	R15 85.4
R16 10.5	R17 no sample	R18 8.6

Painter 1	28.0
Painter 2	12.7
North Stack	4.9
South Stack	2.9
Blank	0.04 mg/filter

L3 6.0	L2 2.3	L1 3.7
L6 23.1, 27.3	L5 20.0	L4 8.3
L9 24.7	L8 25.3	L7 22.4
L12 34.9	L11 35.2, 49.2	L10 29.7
L15 65.0	L14 49.7	L13 41.9
L18 44.8	L17 39.1	L16 63.7

C 7-

C.7-

TEST: PARTICULATE # 1
DATE: 09/14/93 AM
METHOD: NIOSH 500

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: 0
Print Date: 04/04/94

BOOTH Temperature: 71 P Barr: 30.00

GRID LOC	FILTER NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	MASS (mg)	VOL (L) @ STP	Particulate (mg/M3)
L3	1	86	21	1938	2051	930423	0.25	171.0	1.5E+00
L2	2	87	39	1971	2036	930422	0.19	173.8	1.1E+00
L1	3	88	35	1988	2063	930421	0.22	177.7	1.2E+00
L6	6	85	29	1975	2045	930426	1.20	170.3	7.0E+00
L5	5	87	19	1987	2118	930425	2.64	178.0	1.5E+01
L4	4	87	40	1969	2028	930424	1.18	173.3	6.8E+00
L9	137	86	25	1960	1996	930429	3.00	169.6	1.8E+01
L8	145	87	13	1964	2040	930428	4.35	173.7	2.5E+01
L7	138	87	38	1976	2068	930427	3.70	175.4	2.1E+01
L12	142	86	27	1945	1989	930432	3.08	168.7	1.8E+01
L11	136	87	14	1987	2041	930431	4.12	174.7	2.4E+01
L10	130	87	36	1975	2055	930430	4.49	174.8	2.6E+01
L15	140	86	18	1970	2063	930435	5.19	172.9	3.0E+01
L14	141	87	41	1965	2040	930434	6.02	173.7	3.5E+01
L13	134	88	33	2013	2085	930433	4.31	179.8	2.4E+01
L18	128	85	28	1996	2069	930438	1.73	172.2	1.0E+01
L17	129	86	34	1975	1925	930437	4.59	167.2	2.7E+01
L16	135	88	32	1984	2097	930436	6.66	179.0	3.7E+01
PAINTER 1	8	75	43	1985	1988	930439	2.80	148.5	1.9E+01
PAINTER 2	9	75	42	2031	1990	930440	2.48	150.3	1.6E+01
L6 Dup	7	85	37	1968	2037	930442	2.01	169.7	1.2E+01
L11 Dup	143	88	31	1985	2088	930441	5.48	178.7	3.1E+01
R1	133	79	22	1956	2042	930443	0.41	157.4	2.6E+00
R2	144	79	11	1964	2009	930444	0.13	156.5	8.3E-01
R3	139	80	16	1970	2086	930445	0.08	161.8	4.9E-01
R4	132	79	20	1996	2035	930446	0.28	158.7	1.8E+00
R5	131	79	12	1993	2048	930447	0.52	159.1	3.3E+00
R6	127	80	5	1963	2056	930448	0.64	160.3	4.0E+00
R7	125	79	24	1976	2032	930449	0.37	157.8	2.3E+00
R8	126	79	8	1956	2031	930450	0.71	157.0	4.5E+00
R9	124	80	4	2021	2028	930451	1.17	161.5	7.2E+00
R10	21	79	23	1974	2028	930452	1.82	157.6	1.2E+01
R11	24	79	15	1929	2007	930453	2.14	155.0	1.4E+01
R12	22	81	6	1968	2025	930454	2.46	161.2	1.5E+01
R13	20	79	26	1978	2076	930455	3.38	159.7	2.1E+01
R14	19	80	9	1954	2027	930456	4.83	158.8	3.0E+01
R15	16	80	30	1973	2036	930457	2.85	159.9	1.8E+01
R16	15	79	17	1943	2048	930458	2.15	157.2	1.4E+01
R17	17	79	10	1959	2025	930459	3.78	156.9	2.4E+01
R18	18	81	7	1988	2007	930460	2.88	161.3	1.8E+01
NORTH STK	--		1	--	--	--	6.1	1920	3.2E+00
SOUTH STK	--		2	--	--	--	4.2	2190	1.9E+00
R9 Dup	23	80	3	1975	2020	930461	1.11	159.3	7.0E+00

Notes: Lab results are reported to .01 mg (2 decimal places, not 2 significant figures)

C.7

TEST: PARTICULATE # 2 | BARSTOW MCLB | D E Initials: ljl
DATE: 09/14/93 PM | BOOTH 1 TESTS | Q A Initials: 0
METHOD: NIOSH 500 | ACUREX PROJECT 8517 | Print Date: 04/11/94

BOOTH Temperature: 80 P Barr: 30.00

GRID LOC	FILTER NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	MASS (Mg)	VOL (L) @ STP	Particulate (mg/M3)
L3	45	87	28	2069	2038	930485	0.27	175.2	1.5E+00
L2	39	87	5	2056	1996	930484	0.04	172.8	2.3E-01
L1	33	90	6	2025	2004	930483	0.12	177.8	6.8E-01
L6	37	88	29	2045	2001	930488	1.94	174.5	1.1E+01
L5	44	89	14	2041	2019	930487	1.65	177.1	9.3E+00
L4	43	90	7	2007	2001	930486	1.14	176.8	6.4E+00
L9	30	86	9	2027	2002	930491	2.72	169.9	1.6E+01
L8	31	87	13	2040	2008	930490	4.53	172.6	2.6E+01
L7	38	90	10	2025	1995	930489	2.84	177.4	1.6E+01
L12	28	86	31	2088	2020	930494	4.81	173.2	2.8E+01
L11	26	87	11	2009	1982	930493	4.63	170.2	2.7E+01
L10	29	90	35	2063	2011	930492	4.96	179.7	2.8E+01
L15	14	86	8	2031	1998	930497	6.17	169.9	3.6E+01
L14	12	89	4	2028	2026	930496	5.22	176.9	3.0E+01
L13	27	90	37	2037	2029	930495	4.93	179.4	2.7E+01
L18	10	86	12	2048	2028	930500	2.96	171.8	1.7E+01
L17	11	89	3	2020	2004	930499	8.82	175.6	5.0E+01
L16	13	90	32	2097	2075	930498	8.18	184.1	4.4E+01
PAINTER 1	56	76	42	1990	1931	930504	4.13	146.1	2.8E+01
PAINTER 2	55	76	43	1988	1970	930505	3.91	147.5	2.7E+01
L6 Dup	32	85	26	2076	2038	930502	1.81	171.4	1.1E+01
L11 Dup	25	87	15	2007	1980	930503	5.10	170.0	3.0E+01
R1	63	81	36	2055	2044	930465	0.69	162.8	4.2E+00
R2	64	83	33	2085	2048	930466	0.55	168.2	3.3E+00
R3	65	84	22	2042	2010	930467	0.26	166.8	1.6E+00
R4	68	81	41	2040	2028	930468	0.86	161.5	5.3E+00
R5	67	83	34	1925	1890	930469	1.26	155.2	8.1E+00
R6	66	84	16	2086	2086	930470	1.32	171.8	7.7E+00
R7	72	81	30	2036	2002	930471	0.85	160.3	5.3E+00
R8	69	83	27	1989	1985	930472	2.33	161.7	1.4E+01
R9	70	84	19	2118	2068	930473	1.22	172.4	7.1E+00
R10	48	81	18	2063	2038	930474	3.68	162.8	2.3E+01
R11	41	83	23	2028	2002	930475	5.05	164.0	3.1E+01
R12	36	85	24	2032	2007	930476	4.28	168.3	2.5E+01
R13	34	83	38	2068	2053	930477	7.59	167.7	4.5E+01
R14	42	84	20	2035	2029	930478	7.85	167.3	4.7E+01
R15	35	84	17	2048	2029	930479	5.90	167.9	3.5E+01
R16	40	81	40	2028	2000	930480	4.34	159.9	2.7E+01
R17	47	83	39	2036	2040	930481	4.99	165.8	3.0E+01
R18	46	84	21	2051	2120	930482	2.75	171.7	1.6E+01
NORTH STK	--		1	--	--	--	3.30	1880.0	1.8E+00
SOUTH STK	--		2	--	--	--	4.10	2390.0	1.7E+00
R9 Dup	71	84	25	1996	1916	930501	2.95	161.1	1.8E+01
BLANK 1	62	76	T min	2000	2000	930462	0.03	149.0	2.0E-01
BLANK 2	60	85	T mean	2000	2000	930463	0.04	166.7	2.4E-01
BLANK 3	61	90	T max	2000	2000	930464	0.03	176.5	1.7E-01

Notes: Lab results are reported to .01 mg (2 decimal places, not 2 significant figures)

C.7

TEST: PARTICULATE # 3
DATE: 09/16/93 NITE
METHOD: NIOSH 500

BARSTOW MCLB
BOOTH 1 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: 0
Print Date: 04/11/94

BOOTH Temperature: 70 P Barr: 29.81

GRID LOC	FILTER NUMBER	SPL TIME (min)	PUMP #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	MASS (Mg)	VOL (L) @ STP	Particulate (mg/M3)
L3	52	46	22	2013	2011	930526	0.55	91.86	6.0E+00
L2	91	46	7	2049	2016	930525	0.21	92.80	2.3E+00
L1	85	46	9	1961	1960	930524	0.33	89.51	3.7E+00
L6	57	45	36	2036	2062	930529	2.11	91.52	2.3E+01
L5	90	46	24	1984	1977	930528	1.81	90.43	2.0E+01
L4	84	46	30	1952	1959	930527	0.74	89.28	8.3E+00
L9	97	46	17	2029	2065	930532	2.31	93.46	2.5E+01
L8	89	46	21	2042	2045	930531	2.36	93.30	2.5E+01
L7	96	46	19	2070	2110	930530	2.14	95.43	2.2E+01
L12	50	46	6	2019	2021	930535	3.22	92.23	3.5E+01
L11	95	46	38	2007	1996	930534	3.22	91.38	3.5E+01
L10	83	46	45	2027	2061	930533	2.77	93.32	3.0E+01
L15	58	46	28	1938	2007	930538	5.85	90.06	6.5E+01
L14	54	46	1	2039	2018	930537	4.60	92.62	5.0E+01
L13	79	46	20	2014	1984	930536	3.82	91.27	4.2E+01
L18	93	45	5	2025	2043	930541	4.07	90.85	4.5E+01
L17	117	46	27	2019	2039	930540	3.62	92.64	3.9E+01
L16	94	46	3	2089	2049	930539	6.02	94.47	6.4E+01
PAINTER 1	116	46	23	1965	1974	930546	2.52	89.92	2.8E+01
PAINTER 2	110	46	16	2034	2011	930547	1.17	92.34	1.3E+01
L6 Dup	53	45	14	2042	2048	930543	2.49	91.34	2.7E+01
L11 Dup	51	46	26	2087	2044	930544	4.64	94.31	4.9E+01
R1	81	44	10	1978	2016	930506	0.67	87.21	7.7E+00
R2	78	44	34	2043	2041	930507	0.69	89.18	7.7E+00
R3	76	44	47	2013	2011	930508	0.59	87.87	6.7E+00
R4	77	44	15	2006	2000	930509	0.70	87.48	8.0E+00
R5	114	44	31	2033	2067	930510	3.15	89.53	3.5E+01
R6	119	44	35	2020	1960	930511	2.48	86.91	2.9E+01
R7	121	44	44	1996	2026	930512	1.94	87.83	2.2E+01
R8	112	44	48	2035	2039	930513	4.33	88.96	4.9E+01
R9	115	44	8	2028	2059	930514	4.09	89.25	4.6E+01
R10	75	44	32	2042	2000	930515	3.07	88.26	3.5E+01
R11	74	44	2	1997	2014	930516	4.18	87.59	4.8E+01
R12	80	44	18	2032	2047	930517	5.42	89.07	6.1E+01
R13	87	44	33	2022	2000	930518	6.09	87.83	6.9E+01
R14	82	44	39	1987	1969	930519	11.36	86.38	1.3E+02
R15	88	44	43	2017	2048	930520	7.58	88.76	8.5E+01
R16	59	44	29	2038	2069	930521	0.94	89.68	1.0E+01
R17	49	0	13	2014	NA	930522	2.38	0.00	no sample
R18	86	44	4	1989	1984 *	930523	0.75	86.76	8.6E+00
NORTH STK	--	--	--	--	--	--	4.80	980	4.9E+00
SOUTH STK	--	--	--	--	--	--	2.90	990	2.9E+00
R9 Dup	113	44	46	2091	2091	930545	3.91	91.32	4.3E+01
bLANK	92	46	NA	2000	2000	930542	0.04	91.32	4.4E-01

Notes: Lab results are reported to .01 mg (2 decimal places, not 2 significant figures)

C7

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/14/93

Performed by: CF
Sample Location: NORTH EXHAUST

Test No./Type: 1/EPA METHOD 5
Start/Stop Time: 904-938, 1017-1055

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.247
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	0.9811
Barometric Pressure (in Hg)	P(b)	30.00
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	29
Total Sampling Time (min)	(theta)	(73.40)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		992.46
Gas Meter Final Reading (cu ft)		1063.70
Net Gas Sample Volume (cu ft)	V(m)	(71.24)
Vol of Liquid Collected (ml)	Vl(c)	0.0
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.000)
Wt. of Front Half Particulate (gm)		0.00010
Wt. of Back Half Particulate (gm)		0.00600
Wt of Combined Particulate (gm)	M(p)	(0.0061)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.822
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	3.101
Avg Stack Temperature (degF)	T(s avg)	=	74.0
Average Meter Temperature (degF)	T(m avg)	=	88.6
Avg SQRT(dP)		=	0.896

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	67.93
Stack Gas Water Vapor Proportion	B(wo)	=	0.000
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.84
Abs Stack Pressure (in Hg)	P(s)	=	29.98
Avg Stack Velocity (ft/sec)	V(s avg)	=	50.6
Isokineticity (%)	% I	=	93.0
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	28909
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	29183
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0014
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.1940
Particulate Emission Rate(lb/hr)	E(p)	=	0.343

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	1.200	4.40	75	68	66	1.0954
2	2.5	1.200	4.50	70	81	79	1.0954
3	2.5	1.000	3.70	71	83	79	1.0000
4	2.5	1.000	3.80	69	86	80	1.0000
5	2.5	0.950	3.60	70	89	81	0.9747
6	2.5	0.450	1.72	70	91	82	0.6708
7	2.5	0.850	3.25	70	91	82	0.9220
8	2.5	0.850	3.25	71	92	82	0.9220
9	2.5	0.800	3.05	71	92	82	0.8944
10	2.5	0.750	2.87	71	94	83	0.8660
11	2.5	0.760	2.90	71	96	84	0.8718
12	2.5	0.750	2.87	71	97	84	0.8660
13	3.4	0.750	2.87	71	97	84	0.8660
14	2.5	0.850	3.25	71	97	84	0.9220
15	2.5	1.000	3.21	71	97	84	1.0000
16	2.5	0.950	3.61	76	89	88	0.9747
17	2.5	0.870	3.30	76	89	88	0.9327
18	2.5	0.650	2.46	77	91	89	0.8062
19	2.5	0.350	1.32	77	92	89	0.5916
20	2.5	0.150	0.56	77	94	89	0.3873
21	2.5	0.830	3.14	78	94	89	0.9110
22	2.5	0.960	3.64	77	95	89	0.9798
23	2.5	0.820	3.14	78	97	90	0.9055
24	2.5	0.740	2.84	78	96	90	0.8602
25	2.5	0.700	2.67	78	96	90	0.8367
26	2.5	0.920	3.52	78	96	90	0.9592
27	2.5	0.950	3.63	78	96	90	0.9747
28	2.5	0.970	3.71	78	96	91	0.9849
29	2.5	0.820	3.14	77	97	91	0.9055
							0.0000
TOTALS	73.4	23.840	89.92	2146	2669	2469	25.9766

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/14/93

Performed by: BKL
Sample Location: SOUTH EXHAUST

Test No./Type: 1/EPA METHOD 5
Start/Stop Time: 904-934, 1017-1053

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.270
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	1.0190
Barometric Pressure (in Hg)	P(b)	30.00
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	26
Total Sampling Time (min)	(theta)	(65.00)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		817.40
Gas Meter Final Reading (cu ft)		894.70
Net Gas Sample Volume (cu ft)	V(m)	(77.30)
Vol of Liquid Collected (ml)	V(c)	0.0
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.000)
Wt. of Front Half Particulate (gm)		0.00120
Wt. of Back Half Particulate (gm)		0.00300
Wt of Combined Particulate (gm)	M(p)	(0.0042)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.803
Avg Orifice Meter Reading (in H20)	dH(avg)	=	4.518
Avg Stack Temperature (degF)	T(s avg)	=	81.9
Average Meter Temperature (degF)	T(m avg)	=	84.3
Avg SQRT(dP)		=	0.889

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	77.44
Stack Gas Water Vapor Proportion	B(wo)	=	0.000
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.84
Abs Stack Pressure (in Hg)	P(s)	=	29.98
Avg Stack Velocity (ft/sec)	V(s avg)	=	50.6
Isokineticity (%)	% I	=	101.3
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	28485
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	29182
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0008
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.1172
Particulate Emission Rate(lb/hr)	E(p)	=	0.204

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	0.910	5.05	80	76	76	0.9539
2	2.5	0.950	5.33	77	78	79	0.9747
3	2.5	1.000	5.62	77	80	78	1.0000
4	2.5	0.990	5.55	79	81	78	0.9950
5	2.5	0.700	3.92	79	81	78	0.8367
6	2.5	0.200	1.12	79	81	78	0.4472
7	2.5	0.800	4.50	80	84	81	0.8944
8	2.5	0.920	5.19	78	85	80	0.9592
9	2.5	0.800	4.52	79	86	81	0.8944
10	2.5	0.800	4.53	77	87	81	0.8944
11	2.5	0.820	4.64	79	87	82	0.9055
12	2.5	0.830	4.69	80	88	82	0.9110
13	2.5	0.840	4.68	87	85	85	0.9165
14	2.5	0.880	4.89	89	85	84	0.9381
15	2.5	0.920	5.11	90	86	85	0.9592
16	2.5	0.970	5.38	91	87	85	0.9849
17	2.5	0.780	4.33	91	87	86	0.8832
18	2.5	0.440	2.44	92	88	86	0.6633
19	2.5	0.540	3.02	89	89	86	0.7348
20	2.5	0.800	4.51	84	89	86	0.8944
21	2.5	0.850	4.83	80	89	86	0.9220
22	2.5	0.850	4.83	80	89	87	0.9220
23	2.5	0.820	4.67	78	89	87	0.9055
24	2.5	0.820	4.67	78	89	87	0.9055
25	2.5	0.820	4.67	78	89	87	0.9055
26	2.5	0.840	4.78	79	89	87	0.9165
							0.0000
							0.0000
TOTALS	65	20.890	117.47	2130	2224	2158	23.1180

C_7

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/14/93

Performed by: CF
Sample Location: NORTH EXHAUST

Test No./Type: 2/EPA METHOD 5
Start/Stop Time: ~~904-938, 1017-1055~~ 1403-1441/1535-1535

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.247
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	0.9811
Barometric Pressure (in Hg)	P(b)	30.00
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	30
Total Sampling Time (min)	(theta)	(73.00)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		63.89
Gas Meter Final Reading (cu ft)		135.27
Net Gas Sample Volume (cu ft)	V(m)	(71.38)
Vol of Liquid Collected (ml)	Vl(c)	1.7
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.080)
Wt. of Front Half Particulate (gm)		0.00000
Wt. of Back Half Particulate (gm)		0.00330
Wt of Combined Particulate (gm)	M(p)	(0.0033)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.810
Avg Orifice Meter Reading (in H20)	dH(avg)	=	3.076
Avg Stack Temperature (degF)	T(s avg)	=	87.4
Average Meter Temperature (degF)	T(m avg)	=	102.8
Avg SQRT(dP)		=	0.892

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	66.35
Stack Gas Water Vapor Proportion	B(wo)	=	0.001
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.83
Abs Stack Pressure (in Hg)	P(s)	=	29.98
Avg Stack Velocity (ft/sec)	V(s avg)	=	51.0
Isokineticity (%)	% I	=	93.0
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	28397
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	29423
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0008
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.1074
Particulate Emission Rate(lb/hr)	E(p)	=	0.187

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	0.920	3.41	92	97	97	0.9592
2	2.5	1.100	4.10	86	97	98	1.0488
3	2.5	1.200	4.54	88	98	98	1.0954
4	2.5	1.200	4.54	88	101	98	1.0954
5	2.5	1.100	4.18	86	102	98	1.0488
6	2.5	0.550	2.02	86	105	98	0.7416
7	2.5	0.860	3.29	86	108	99	0.9274
8	2.5	0.820	3.14	86	108	99	0.9055
9	2.5	0.800	3.06	86	108	100	0.8944
10	2.5	0.760	2.91	86	108	100	0.8718
11	2.5	0.750	2.87	88	108	100	0.8660
12	2.5	0.700	2.68	88	108	101	0.8367
13	2.5	0.720	2.75	87	108	101	0.8485
14	2.5	0.840	3.21	87	108	101	0.9165
15	2.5	0.900	3.44	88	108	101	0.9487
16	2.5	0.800	3.06	88	108	101	0.8944
17	2.5	0.810	3.09	88	108	101	0.9000
18	2.5	0.910	3.45	88	108	100	0.9539
19	2.5	0.770	2.93	87	100	101	0.8775
20	2.5	0.250	0.94	87	102	100	0.5000
21	2.5	0.450	1.71	87	104	100	0.6708
22	2.5	0.460	1.75	87	104	101	0.6782
23	2.5	0.780	2.96	87	105	101	0.8832
24	2.5	0.800	3.03	88	108	101	0.8944
25	2.5	0.860	3.26	88	108	101	0.9274
26	2.5	0.910	3.48	88	108	101	0.9539
27	2.5	0.890	3.40	88	108	101	0.9434
28	2.5	0.850	3.25	88	108	101	0.9220
29	2.5	0.750	2.86	88	108	100	0.8660
30	0.5	0.780	2.98	88	109	101	0.8832
TOTALS	73	24.290	92.29	2623	3168	3000	26.7532

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/14/93

Performed by: BKL
Sample Location: SOUTH EXHAUST

Test No./Type: 2/EPA METHOD 5
Start/Stop Time: 1403-1444, 1505-1535

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.270
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	1.0190
Barometric Pressure (in Hg)	P(b)	30.00
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	28
Total Sampling Time (min)	(theta)	(70.00)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		894.84
Gas Meter Final Reading (cu ft)		981.68
Net Gas Sample Volume (cu ft)	V(m)	(86.83)
Vol of Liquid Collected (ml)	Vl(c)	0.0
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.000)
Wt. of Front Half Particulate (gm)		0.00090
Wt. of Back Half Particulate (gm)		0.00320
Wt of Combined Particulate (gm)	M(p)	(0.0041)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.835
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	4.713
Avg Stack Temperature (degF)	T(s avg)	=	96.1
Average Meter Temperature (degF)	T(m avg)	=	100.7
Avg SQRT(dP)		=	0.907

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	84.48
Stack Gas Water Vapor Proportion	B(wo)	=	0.000
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.84
Abs Stack Pressure (in Hg)	P(s)	=	29.98
Avg Stack Velocity (ft/sec)	V(s avg)	=	52.3
Isokineticity (%)	% I	=	101.9
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	28694
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	30167
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0007
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.1048
Particulate Emission Rate(lb/hr)	E(p)	=	0.184

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	0.830	4.64	96	95	95	0.9110
2	2.5	0.960	5.41	94	98	97	0.9798
3	2.5	0.980	5.51	95	98	97	0.9899
4	2.5	0.960	5.36	99	99	97	0.9798
5	2.5	0.780	4.35	100	100	97	0.8832
6	2.5	0.220	1.23	100	101	97	0.4690
7	2.5	0.980	5.51	96	101	97	0.9899
8	2.5	0.980	5.54	94	101	98	0.9899
9	2.5	0.870	4.91	95	101	99	0.9327
10	2.5	0.880	4.96	97	102	99	0.9381
11	2.5	0.860	4.88	94	103	99	0.9274
12	2.5	0.870	4.93	94	103	99	0.9327
13	2.5	0.870	4.96	91	103	99	0.9327
14	2.5	0.870	4.96	91	103	99	0.9327
15	2.5	0.870	4.96	92	103	99	0.9327
16	2.5	0.870	4.96	92	103	99	0.9327
17	2.5	0.890	5.00	100	102	102	0.9434
18	2.5	0.860	4.83	100	103	101	0.9274
19	2.5	0.880	4.92	102	103	101	0.9381
20	2.5	0.980	5.50	100	103	101	0.9899
21	2.5	0.790	4.44	99	103	101	0.8888
22	2.5	0.500	2.81	99	103	101	0.7071
23	2.5	0.510	2.88	100	104	101	0.7141
24	2.5	0.820	4.65	96	104	101	0.9055
25	2.5	0.890	5.05	95	104	101	0.9434
26	2.5	0.860	4.90	93	104	101	0.9274
27	2.5	0.870	4.96	94	106	101	0.9327
28	2.5	0.870	4.96	94	106	101	0.9327
TOTALS	70	23.370	131.97	2692	2859	2780	25.4052

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/15/93

Performed by: CF
Sample Location: NORTH EXHAUST

Test No./Type: 3/EPA METHOD 5
Start/Stop Time: 837-940

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.247
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	0.9811
Barometric Pressure (in Hg)	P(b)	29.95
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	26
Total Sampling Time (min)	(theta)	(63.00)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		160.87
Gas Meter Final Reading (cu ft)		222.88
Net Gas Sample Volume (cu ft)	V(m)	(62.01)
Vol of Liquid Collected (ml)	Vl(c)	14.3
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.673)
Wt. of Front Half Particulate (gm)		0.0000
Wt. of Back Half Particulate (gm)		0.0050
Wt of Combined Particulate (gm)	M(p)	(0.0050)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.821
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	3.137
Avg Stack Temperature (degF)	T(s avg)	=	75.1
Average Meter Temperature (degF)	T(m avg)	=	84.4
Avg SQRT(dP)		=	0.899

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	59.50
Stack Gas Water Vapor Proportion	B(wo)	=	0.011
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.72
Abs Stack Pressure (in Hg)	P(s)	=	29.93
Avg Stack Velocity (ft/sec)	V(s avg)	=	50.9
Isokineticity (%)	% I	=	95.6
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	28692
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	29402
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0013
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.1815
Particulate Emission Rate(lb/hr)	E(p)	=	0.319

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp (degF) in	Meter (degF) out	SQRT(dP)
1	2.5	0.820	3.07	78	74	74	0.9055
2	2.5	0.970	3.67	75	77	75	0.9849
3	2.5	1.000	3.79	75	78	76	1.0000
4	2.5	0.820	3.11	75	81	76	0.9055
5	2.5	0.840	3.19	75	83	77	0.9165
6	2.5	0.210	0.79	75	85	77	0.4583
7	2.5	0.750	2.86	75	85	78	0.8660
8	2.5	0.780	2.98	75	87	78	0.8832
9	2.5	0.800	3.05	75	87	78	0.8944
10	2.5	0.680	2.60	75	87	78	0.8246
11	2.5	0.740	2.83	75	89	79	0.8602
12	2.5	0.720	2.77	75	90	80	0.8485
13	2.5	0.760	2.67	75	92	80	0.8718
14	2.5	0.760	2.93	75	92	81	0.8718
15	2.5	0.860	3.31	75	92	81	0.9274
16	2.5	0.840	3.23	75	92	82	0.9165
17	2.5	0.860	3.31	75	92	82	0.9274
18	2.5	0.820	3.16	75	92	82	0.9055
19	2.5	0.450	1.73	75	93	83	0.6708
20	2.5	0.950	3.66	75	92	84	0.9747
21	2.5	1.000	3.85	75	92	84	1.0000
22	2.5	1.100	4.24	75	94	84	1.0488
23	2.5	1.000	3.86	75	94	84	1.0000
24	2.5	0.940	3.63	75	94	84	0.9695
25	2.5	0.940	3.63	75	94	84	0.9695
26	0.5	0.940	3.63	75	94	84	0.9695
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	63	21.350	81.55	1953	2302	2085	23.3710

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/15/93

Performed by: BKL
Sample Location: SOUTH EXHAUST

Test No./Type: 3/EPA METHOD 5
Start/Stop Time: 837-940

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.270
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	1.0190
Barometric Pressure (in Hg)	P(b)	29.95
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	25
Total Sampling Time (min)	(theta)	(62.50)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		986.75
Gas Meter Final Reading (cu ft)		1057.91
Net Gas Sample Volume (cu ft)	V(m)	(71.15)
Vol of Liquid Collected (ml)	Vl(c)	14.3
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.673)
Wt. of Front Half Particulate (gm)		0.0000
Wt. of Back Half Particulate (gm)		0.0034
Wt of Combined Particulate (gm)	M(p)	(0.0034)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.748
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	4.282
Avg Stack Temperature (degF)	T(s avg)	=	76.7
Average Meter Temperature (degF)	T(m avg)	=	80.5
Avg SQRT(dP)		=	0.850

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	71.61
Stack Gas Water Vapor Proportion	B(wo)	=	0.009
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.74
Abs Stack Pressure (in Hg)	P(s)	=	29.93
Avg Stack Velocity (ft/sec)	V(s avg)	=	48.2
Isokineticity (%)	% I	=	102.3
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	27125
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	27827
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0007
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.1026
Particulate Emission Rate(lb/hr)	E(p)	=	0.170

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	1.000	5.72	68	71	71	1.0000
2	2.5	1.000	5.68	75	75	72	1.0000
3	2.5	1.000	5.69	75	76	74	1.0000
4	2.5	1.000	5.68	76	77	74	1.0000
5	2.5	0.830	4.73	76	78	75	0.9110
6	2.5	0.150	0.85	76	78	75	0.3873
7	2.5	0.710	4.06	76	80	77	0.8426
8	2.5	0.710	4.06	76	80	77	0.8426
9	2.5	0.700	4.00	76	80	77	0.8367
10	2.5	0.670	3.83	76	82	77	0.8185
11	2.5	0.690	3.95	77	84	78	0.8307
12	2.5	0.660	3.77	79	86	78	0.8124
13	2.5	0.700	4.03	76	86	79	0.8367
14	2.5	0.700	4.03	76	86	78	0.8367
15	2.5	0.680	3.91	77	87	79	0.8246
16	2.5	0.780	4.46	80	87	79	0.8832
17	2.5	0.790	4.52	80	87	79	0.8888
18	2.5	0.100	0.58	76	88	81	0.3162
19	2.5	0.690	3.98	77	86	82	0.8307
20	2.5	0.870	5.02	77	88	81	0.9327
21	2.5	0.890	5.12	79	88	82	0.9434
22	2.5	0.900	5.19	78	86	82	0.9487
23	2.5	0.880	5.07	78	86	82	0.9381
24	2.5	0.850	4.88	79	86	82	0.9220
25	2.5	0.740	4.25	79	85	83	0.8602
							0.0000
							0.0000
							0.0000
TOTALS	62.5	18.690	107.06	1918	2073	1954	21.2437

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/15/93
Performed by: CF
Sample Location: NORTH EXHAUST
Test No./Type: 4/EPA METHOD 5
Start/Stop Time: 1242-1335

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.247
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	0.9895
Barometric Pressure (in Hg)	P(b)	29.95
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	21
Total Sampling Time (min)	(theta)	(51.50)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		665.92
Gas Meter Final Reading (cu ft)		719.50
Net Gas Sample Volume (cu ft)	V(m)	(53.58)
Vol of Liquid Collected (ml)	Vl(c)	9.0
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.424)
Wt. of Front Half Particulate (gm)		0.0001
Wt. of Back Half Particulate (gm)		0.0032
Wt of Combined Particulate (gm)	M(p)	(0.0033)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.825
Avg Orifice Meter Reading (in H20)	dH(avg)	=	3.366
Avg Stack Temperature (degF)	T(s avg)	=	81.3
Average Meter Temperature (degF)	T(m avg)	=	100.0
Avg SQRT(dP)		=	0.899

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	50.44
Stack Gas Water Vapor Proportion	B(wo)	=	0.008
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.75
Abs Stack Pressure (in Hg)	P(s)	=	29.93
Avg Stack Velocity (ft/sec)	V(s avg)	=	51.2
Isokineticity (%)	% I	=	99.4
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	28615
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	29575
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0010
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.1413
Particulate Emission Rate(lb/hr)	E(p)	=	0.248

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	0.730	2.94	82	94	94	0.8544
2	2.5	0.790	3.19	83	95	95	0.8888
3	2.5	0.860	3.48	83	98	95	0.9274
4	2.5	0.850	3.45	82	99	95	0.9220
5	2.5	0.850	3.45	81	100	95	0.9220
6	2.5	0.820	3.33	81	100	95	0.9055
7	2.5	0.310	1.26	81	101	96	0.5568
8	2.5	0.820	3.34	81	105	97	0.9055
9	2.5	0.990	4.04	81	105	97	0.9950
10	2.5	1.000	4.08	81	108	98	1.0000
11	2.5	1.000	4.09	81	106	98	1.0000
12	2.5	1.000	4.09	81	106	98	1.0000
13	2.5	0.970	3.97	81	106	98	0.9849
14	2.5	1.000	4.10	81	106	98	1.0000
15	2.5	0.980	4.02	81	106	98	0.9899
16	2.5	0.960	3.94	81	105	98	0.9798
17	2.5	0.820	3.36	81	105	98	0.9055
18	2.5	0.270	1.10	81	105	98	0.5196
19	2.5	0.750	3.07	81	105	98	0.8660
20	2.5	0.790	3.23	81	105	97	0.8888
21	1.5	0.770	3.16	81	106	97	0.8775
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	51.5	17.330	70.69	1707	2166	2033	18.8895

C.7

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/15/93

Performed by: BKL
Sample Location: SOUTH EXHAUST

Test No./Type: 4/EPA METHOD 5
Start/Stop Time: 1242-1335

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.270
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	1.0190
Barometric Pressure (in Hg)	P(b)	29.95
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	21
Total Sampling Time (min)	(theta)	(52.50)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		58.64
Gas Meter Final Reading (cu ft)		118.91
Net Gas Sample Volume (cu ft)	V(m)	(60.27)
Vol of Liquid Collected (ml)	Vl(c)	10.0
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.471)
Wt. of Front Half Particulate (gm)		0.0000
Wt. of Back Half Particulate (gm)		0.0029
Wt of Combined Particulate (gm)	M(p)	(0.0029)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.775
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	4.439
Avg Stack Temperature (degF)	T(s avg)	=	92.7
Average Meter Temperature (degF)	T(m avg)	=	96.5
Avg SQRT(dP)		=	0.867

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	58.94
Stack Gas Water Vapor Proportion	B(wo)	=	0.008
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.76
Abs Stack Pressure (in Hg)	P(s)	=	29.93
Avg Stack Velocity (ft/sec)	V(s avg)	=	49.9
Isokineticity (%)	% I	=	99.6
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	27299
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	28797
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0008
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.1063
Particulate Emission Rate(lb/hr)	E(p)	=	0.178

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp (degF) in	Meter (degF) out	SQRT(dP)
1	2.5	1.000	5.62	98	92	92	1.0000
2	2.5	1.000	5.62	99	93	91	1.0000
3	2.5	0.980	5.49	100	93	91	0.9899
4	2.5	0.940	5.39	89	94	91	0.9695
5	2.5	0.670	3.76	100	95	91	0.8185
6	2.5	0.200	1.15	89	97	91	0.4472
7	2.5	0.740	4.19	100	99	91	0.8602
8	2.5	0.840	4.84	89	101	91	0.9165
9	2.5	0.790	4.57	88	102	92	0.8888
10	2.5	0.800	4.66	85	103	93	0.8944
11	2.5	0.760	4.42	86	103	93	0.8718
12	2.5	0.770	4.48	85	102	93	0.8775
13	2.5	0.760	4.43	84	102	93	0.8718
14	2.5	0.800	4.67	84	102	93	0.8944
15	2.5	0.780	4.56	84	103	93	0.8832
16	2.5	0.850	4.88	94	104	93	0.9220
17	2.5	0.790	4.54	94	105	93	0.8868
18	2.5	0.170	0.98	94	105	93	0.4123
19	2.5	0.650	3.70	100	103	93	0.8062
20	2.5	0.980	5.58	102	108	94	0.9899
21	2.5	1.000	5.69	102	108	94	1.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	52.5	16.270	93.22	1946	2114	1939	18.2031

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/15/93

Performed by: CF
Sample Location: NORTH EXHAUST

Test No./Type: 5/EPA METHOD 5
Start/Stop Time: 1557-1642

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.247
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	0.9895
Barometric Pressure (in Hg)	P(b)	29.95
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	18
Total Sampling Time (min)	(theta)	(45.00)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		720.11
Gas Meter Final Reading (cu ft)		766.86
Net Gas Sample Volume (cu ft)	V(m)	(46.75)
Vol of Liquid Collected (ml)	Vl(c)	12.2
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.574)
Wt. of Front Half Particulate (gm)		0.0003
Wt. of Back Half Particulate (gm)		0.0047
Wt of Combined Particulate (gm)	M(p)	(0.0050)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.749
Avg Orifice Meter Reading (in H20)	dH(avg)	=	3.047
Avg Stack Temperature (degF)	T(s avg)	=	86.2
Average Meter Temperature (degF)	T(m avg)	=	104.4
Avg SQRT(dP)		=	0.859

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	43.62
Stack Gas Water Vapor Proportion	B(wo)	=	0.013
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.70
Abs Stack Pressure (in Hg)	P(s)	=	29.93
Avg Stack Velocity (ft/sec)	V(s avg)	=	49.2
Isokineticity (%)	% I	=	103.9
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	27106
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	28405
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0018
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.2476
Particulate Emission Rate(lb/hr)	E(p)	=	0.411

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	1.000	4.03	87	98	98	1.0000
2	2.5	0.910	3.66	86	98	98	0.9539
3	2.5	0.900	3.66	86	98	98	0.9487
4	2.5	0.930	3.76	86	98	98	0.9644
5	2.5	0.750	3.04	86	100	99	0.8660
6	2.5	0.230	0.93	86	104	101	0.4796
7	2.5	0.750	3.06	86	106	101	0.8660
8	2.5	0.780	3.18	86	108	102	0.8832
9	2.5	0.760	3.10	86	108	102	0.8718
10	2.5	0.710	2.89	86	109	102	0.8426
11	2.5	0.700	2.85	87	109	102	0.8367
12	2.5	0.680	2.77	87	109	102	0.8246
13	2.5	0.720	2.93	87	113	103	0.8485
14	2.5	0.650	2.65	86	113	103	0.8062
15	2.5	0.680	2.77	86	114	104	0.8246
16	2.5	0.760	3.10	86	114	105	0.8718
17	2.5	0.800	3.26	86	116	105	0.8944
18	2.5	0.780	3.20	86	116	105	0.8832
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	45	13.490	54.84	1552	1931	1828	15.4662

C-7

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/15/93

Performed by: BKL
Sample Location: SOUTH EXHAUST

Test No./Type: 5/EPA METHOD 5
Start/Stop Time: 1557-1642

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.270
Pilot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	1.0190
Barometric Pressure (in Hg)	P(b)	29.95
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	18
Total Sampling Time (min)	(theta)	(45.00)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		119.24
Gas Meter Final Reading (cu ft)		170.07
Net Gas Sample Volume (cu ft)	V(m)	(50.82)
Vol of Liquid Collected (ml)	Vl(c)	0.0
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.000)
Wt. of Front Half Particulate (gm)		0.0002
Wt. of Back Half Particulate (gm)		0.0050
Wt of Combined Particulate (gm)	M(p)	(0.0052)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.689
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	4.017
Avg Stack Temperature (degF)	T(s avg)	=	93.2
Average Meter Temperature (degF)	T(m avg)	=	105.1
Avg SQRT(dP)		=	0.806

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	48.90
Stack Gas Water Vapor Proportion	B(wo)	=	0.000
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.84
Abs Stack Pressure (in Hg)	P(s)	=	29.93
Avg Stack Velocity (ft/sec)	V(s avg)	=	46.3
Isokineticity (%)	% I	=	103.1
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	25523
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	26737
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0016
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.2297
Particulate Emission Rate(lb/hr)	E(p)	=	0.359

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp (degF) in	Meter (degF) out	SQRT(dP)
1	2.5	0.780	4.52	94	104	104	0.8832
2	2.5	0.740	4.25	97	102	103	0.8602
3	2.5	0.690	3.93	102	102	103	0.8307
4	2.5	0.600	3.40	106	104	103	0.7746
5	2.5	0.340	1.93	105	105	104	0.5831
6	2.5	0.080	0.45	105	106	103	0.2828
7	2.5	0.820	4.69	102	106	103	0.9055
8	2.5	0.830	4.88	87	107	104	0.9110
9	2.5	0.810	4.75	89	107	104	0.9000
10	2.5	0.780	4.57	89	107	104	0.8832
11	2.5	0.820	4.81	89	107	104	0.9055
12	2.5	0.830	4.88	88	107	104	0.9110
13	2.5	0.820	4.82	88	107	104	0.9055
14	2.5	0.840	4.94	87	107	104	0.9165
15	2.5	0.810	4.77	87	108	104	0.9000
16	2.5	0.840	4.95	87	109	105	0.9165
17	2.5	0.900	5.29	89	109	105	0.9487
18	2.5	0.080	0.47	87	109	105	0.2828
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	45	12.410	72.30	1678	1913	1870	14.5010

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/16/93

Performed by: CF
Sample Location: NORTH EXHAUST

Test No./Type: 6/EPA METHOD 5
Start/Stop Time: 1730-1810

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.243
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	0.9895
Barometric Pressure (in Hg)	P(b)	29.81
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	16
Total Sampling Time (min)	(theta)	(38.50)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		906.16
Gas Meter Final Reading (cu ft)		942.06
Net Gas Sample Volume (cu ft)	V(m)	(35.90)
Vol of Liquid Collected (ml)	Vl(c)	4.7
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.221)
Wt. of Front Half Particulate (gm)		0.00110
Wt. of Back Half Particulate (gm)		0.00370
Wt of Combined Particulate (gm)	M(p)	(0.0048)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.744
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	2.796
Avg Stack Temperature (degF)	T(s avg)	=	76.8
Average Meter Temperature (degF)	T(m avg)	=	81.5
Avg SQRT(dP)		=	0.860

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	34.74
Stack Gas Water Vapor Proportion	B(wo)	=	0.006
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.77
Abs Stack Pressure (in Hg)	P(s)	=	29.79
Avg Stack Velocity (ft/sec)	V(s avg)	=	48.9
Isokineticity (%)	% I	=	98.3
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	27446
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	28205
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0021
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.2985
Particulate Emission Rate(lb/hr)	E(p)	=	0.502

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	0.890	3.34	80	84	84	0.9434
2	2.5	0.820	3.06	78	79	81	0.9055
3	2.5	0.930	3.48	78	80	81	0.9644
4	2.5	0.890	3.34	77	82	81	0.9434
5	2.5	0.650	2.43	77	82	80	0.8062
6	2.5	0.400	1.50	77	82	80	0.6325
7	2.5	0.700	2.63	77	82	80	0.8367
8	2.5	0.710	2.67	76	82	80	0.8426
9	2.5	0.750	2.82	76	82	80	0.8660
10	2.5	0.780	2.93	76	84	81	0.8832
11	2.5	0.720	2.70	76	84	81	0.8485
12	2.5	0.740	2.79	76	84	81	0.8602
13	2.5	0.750	2.83	76	84	79	0.8660
14	2.5	0.720	2.71	76	84	79	0.8485
15	2.5	0.740	2.79	76	84	79	0.8602
16	1	0.720	2.71	76	84	79	0.8485
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	38.5	11.910	44.73	1228	1323	1286	13.7559

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/16/93

Performed by: BKL
Sample Location: SOUTH EXHAUST

Test No./Type: 6/EPA METHOD 5
Start/Stop Time: 1730-1808

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.242
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	1.0190
Barometric Pressure (in Hg)	P(b)	29.81
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	15
Total Sampling Time (min)	(theta)	(37.50)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		336.38
Gas Meter Final Reading (cu ft)		371.50
Net Gas Sample Volume (cu ft)	V(m)	(35.12)
Vol of Liquid Collected (ml)	Vl(c)	4.6
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.217)
Wt. of Front Half Particulate (gm)		0.00020
Wt. of Back Half Particulate (gm)		0.00270
Wt of Combined Particulate (gm)	M(p)	(0.0029)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.768
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	2.845
Avg Stack Temperature (degF)	T(s avg)	=	76.1
Average Meter Temperature (degF)	T(m avg)	=	80.7
Avg SQRT(dP)		=	0.868

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	35.04
Stack Gas Water Vapor Proportion	B(wo)	=	0.006
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.78
Abs Stack Pressure (in Hg)	P(s)	=	29.79
Avg Stack Velocity (ft/sec)	V(s avg)	=	49.3
Isokineticity (%)	% I	=	101.6
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	27730
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	28455
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0013
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.1788
Particulate Emission Rate(lb/hr)	E(p)	=	0.303

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp (degF) in	Meter (degF) out	SQRT(dP)
1	2.5	0.920	3.38	80	80	80	0.9592
2	2.5	0.910	3.38	76	81	82	0.9539
3	2.5	0.960	3.56	76	81	81	0.9798
4	2.5	0.960	3.56	76	81	81	0.9798
5	2.5	0.730	2.71	76	82	81	0.8544
6	2.5	0.200	0.74	76	82	81	0.4472
7	2.5	0.780	2.89	76	82	80	0.8832
8	2.5	0.820	3.04	76	83	80	0.9055
9	2.5	0.760	2.82	76	82	80	0.8718
10	2.5	0.750	2.78	76	81	80	0.8660
11	2.5	0.740	2.74	76	81	79	0.8602
12	2.5	0.740	2.74	76	81	79	0.8602
13	2.5	0.740	2.74	76	81	80	0.8602
14	2.5	0.750	2.78	75	82	79	0.8660
15	2.5	0.760	2.82	74	81	78	0.8718
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	37.5	11.520	42.68	1141	1221	1201	13.0193

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/17/93

Performed by: CF
Sample Location: NORTH EXHAUST

Test No./Type: 7/EPA METHOD 5
Start/Stop Time: 1230-1305

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.243
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	0.9895
Barometric Pressure (in Hg)	P(b)	29.91
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	14
Total Sampling Time (min)	(theta)	(35.00)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		73.10
Gas Meter Final Reading (cu ft)		104.32
Net Gas Sample Volume (cu ft)	V(m)	(31.22)
Vol of Liquid Collected (ml)	Vl(c)	1.0
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.047)
Wt. of Front Half Particulate (gm)		0.0003
Wt. of Back Half Particulate (gm)		0.0053
Wt of Combined Particulate (gm)	M(p)	(0.0056)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.737
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	2.784
Avg Stack Temperature (degF)	T(s avg)	=	72.4
Average Meter Temperature (degF)	T(m avg)	=	80.3
Avg SQRT(dP)		=	0.848

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	30.37
Stack Gas Water Vapor Proportion	B(wo)	=	0.002
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.83
Abs Stack Pressure (in Hg)	P(s)	=	29.89
Avg Stack Velocity (ft/sec)	V(s avg)	=	47.9
Isokineticity (%)	% I	=	94.9
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	27332
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	27636
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0028
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.3983
Particulate Emission Rate(lb/hr)	E(p)	=	0.666

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp (degF) in	Meter (degF) out	SQRT(dP)
1	2.5	1.000	3.77	73	79	79	1.0000
2	2.5	0.970	3.66	72	79	79	0.9849
3	2.5	0.950	3.59	72	79	79	0.9747
4	2.5	0.980	3.70	72	79	79	0.9899
5	2.5	0.890	3.36	72	80	79	0.9434
6	2.5	0.350	1.32	72	80	79	0.5916
7	2.5	0.290	1.09	72	80	79	0.5385
8	2.5	0.650	2.45	72	81	79	0.8062
9	2.5	0.650	2.45	72	82	80	0.8062
10	2.5	0.750	2.83	73	82	80	0.8660
11	2.5	0.720	2.72	73	83	80	0.8485
12	2.5	0.720	2.72	73	83	80	0.8485
13	2.5	0.710	2.70	73	83	82	0.8426
14	2.5	0.690	2.62	73	83	82	0.8307
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	35	10.320	38.98	1014	1133	1116	11.8718

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/17/93

Performed by: BKL
Sample Location: SOUTH EXHAUST

Test No./Type: 7/EPA METHOD 5
Start/Stop Time: 1230-1305

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.242
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	1.0190
Barometric Pressure (in Hg)	P(b)	29.91
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	14
Total Sampling Time (min)	(theta)	(35.00)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		483.58
Gas Meter Final Reading (cu ft)		514.12
Net Gas Sample Volume (cu ft)	V(m)	(30.54)
Vol of Liquid Collected (ml)	Vl(c)	3.3
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.155)
Wt. of Front Half Particulate (gm)		0.0008
Wt. of Back Half Particulate (gm)		0.0058
Wt of Combined Particulate (gm)	M(p)	(0.0066)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.688
Avg Orifice Meter Reading (in H20)	dH(avg)	=	2.544
Avg Stack Temperature (degF)	T(s avg)	=	77.1
Average Meter Temperature (degF)	T(m avg)	=	81.3
Avg SQRT(dP)		=	0.818

CALCULATED VALUES

Meter Volume (std. cu. ft.)	V(m std)	=	30.52
Stack Gas Water Vapor Proportion	B(wo)	=	0.005
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.79
Abs Stack Pressure (in Hg)	P(s)	=	29.89
Avg Stack Velocity (ft/sec)	V(s avg)	=	46.4
Isokineticity (%)	% I	=	100.5
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	26172
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	26788
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0033
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.4671
Particulate Emission Rate(lb/hr)	E(p)	=	0.748

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	0.980	3.62	77	80	80	0.9899
2	2.5	0.940	3.47	76	80	78	0.9695
3	2.5	1.000	3.69	77	81	78	1.0000
4	2.5	0.980	3.62	76	82	78	0.9899
5	2.5	0.640	2.37	76	82	80	0.8000
6	2.5	0.200	0.74	76	83	79	0.4472
7	2.5	0.640	2.36	78	83	79	0.8000
8	2.5	0.610	2.26	77	84	80	0.7810
9	2.5	0.640	2.37	77	84	80	0.8000
10	2.5	0.570	2.11	78	84	80	0.7550
11	2.5	0.580	2.14	78	84	81	0.7616
12	2.5	0.610	2.26	77	84	81	0.7810
13	2.5	0.620	2.30	78	85	81	0.7874
14	2.5	0.620	2.30	78	85	81	0.7874
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	35	9.630	35.61	1079	1161	1116	11.4501

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/20/93
Performed by: CF
Sample Location: NORTH EXHAUST
Test No./Type: 8/EPA METHOD 5
Start/Stop Time: 904-954

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.243
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	0.9895
Barometric Pressure (in Hg)	P(b)	29.87
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	20
Total Sampling Time (min)	(theta)	(50.00)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		123.03
Gas Meter Final Reading (cu ft)		167.49
Net Gas Sample Volume (cu ft)	V(m)	(44.46)
Vol of Liquid Collected (ml)	Vl(c)	7.1
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.334)
Wt. of Front Half Particulate (gm)		0.0019
Wt. of Back Half Particulate (gm)		0.0036
Wt of Combined Particulate (gm)	M(p)	(0.0055)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.721
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	2.687
Avg Stack Temperature (degF)	T(s avg)	=	71.0
Average Meter Temperature (degF)	T(m avg)	=	72.5
Avg SQRT(dP)		=	0.835

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	43.82
Stack Gas Water Vapor Proportion	B(wo)	=	0.008
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.76
Abs Stack Pressure (in Hg)	P(s)	=	29.85
Avg Stack Velocity (ft/sec)	V(s avg)	=	47.2
Isokineticity (%)	% I	=	97.7
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	26813
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	27239
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0019
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.2711
Particulate Emission Rate(lb/hr)	E(p)	=	0.445

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Meter Temp (degF) in	Gas Meter Temp (degF) out	SQRT(dP)
1	2.5	0.950	3.50	71	65	65	0.9747
2	2.5	0.970	3.59	71	68	67	0.9849
3	2.5	0.950	3.52	71	69	67	0.9747
4	2.5	0.860	3.19	71	71	69	0.9274
5	2.5	0.650	2.41	71	71	69	0.8062
6	2.5	0.270	1.00	71	74	69	0.5196
7	2.5	0.380	1.41	71	74	69	0.6164
8	2.5	0.640	2.38	71	74	69	0.8000
9	2.5	0.740	2.77	71	74	70	0.8602
10	2.5	0.760	2.84	71	76	71	0.8718
11	2.5	0.770	2.87	71	76	71	0.8775
12	2.5	0.720	2.69	71	77	71	0.8485
13	2.5	0.720	2.70	71	77	72	0.8485
14	2.5	0.920	3.44	71	77	72	0.9592
15	2.5	0.970	3.64	71	77	72	0.9849
16	2.5	0.990	3.71	71	77	72	0.9950
17	2.5	0.820	3.07	71	78	72	0.9055
18	2.5	0.740	2.77	71	79	73	0.8602
19	2.5	0.260	0.97	71	79	73	0.5099
20	2.5	0.340	1.27	71	79	73	0.5831
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	50	14.420	53.74	1420	1492	1406	16.7083

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/20/93

Performed by: BKL
Sample Location: SOUTH EXHAUST

Test No./Type: 8/EPA METHOD 5
Start/Stop Time: 900-949

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.242
Pilot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	1.0190
Barometric Pressure (in Hg)	P(b)	29.87
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	20
Total Sampling Time (min)	(theta)	(49.50)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		534.81
Gas Meter Final Reading (cu ft)		572.70
Net Gas Sample Volume (cu ft)	V(m)	(37.89)
Vol of Liquid Collected (ml)	Vl(c)	4.1
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.193)
Wt. of Front Half Particulate (gm)		0.0001
Wt. of Back Half Particulate (gm)		0.0023
Wt of Combined Particulate (gm)	M(p)	(0.0024)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.545
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	2.007
Avg Stack Temperature (degF)	T(s avg)	=	77.8
Average Meter Temperature (degF)	T(m avg)	=	79.8
Avg SQRT(dP)		=	0.721

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	37.87
Stack Gas Water Vapor Proportion	B(wo)	=	0.005
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.79
Abs Stack Pressure (in Hg)	P(s)	=	29.85
Avg Stack Velocity (ft/sec)	V(s avg)	=	41.0
Isokineticity (%)	% I	=	100.1
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	23035
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	23641
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0010
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.1369
Particulate Emission Rate(lb/hr)	E(p)	=	0.193

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	0.910	3.35	71	72	72	0.9539
2	2.5	0.840	3.08	74	75	72	0.9165
3	2.5	0.880	3.23	75	76	74	0.9381
4	2.5	0.790	2.91	75	78	75	0.8888
5	2.5	0.480	1.77	75	79	75	0.6928
6	2.5	0.120	0.44	75	81	75	0.3464
7	2.5	0.310	1.15	75	81	76	0.5568
8	2.5	0.500	1.85	76	82	76	0.7071
9	2.5	0.560	2.07	75	82	77	0.7483
10	2.5	0.560	2.07	75	83	77	0.7483
11	2.5	0.570	2.11	76	84	78	0.7550
12	2.5	0.590	2.19	76	84	79	0.7681
13	2.5	0.590	2.17	78	83	79	0.7681
14	2.5	0.590	2.17	82	85	79	0.7681
15	2.5	0.580	2.12	84	86	79	0.7616
16	2.5	0.610	2.23	84	86	80	0.7810
17	2.5	0.560	2.06	84	87	80	0.7483
18	2.5	0.360	1.32	84	87	81	0.6000
19	2.5	0.130	0.48	82	87	81	0.3606
20	2	0.370	1.37	80	86	81	0.6083
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	49.5	10.900	40.14	1556	1644	1546	14.4162

C.7-

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/20/93

Performed by: CF
Sample Location: NORTH EXHAUST

Test No./Type: 9/EPA METHOD 5
Start/Stop Time: 1207-1245

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.243
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	0.9895
Barometric Pressure (in Hg)	P(b)	29.87
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	15
Total Sampling Time (min)	(theta)	(37.50)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		167.84
Gas Meter Final Reading (cu ft)		201.26
Net Gas Sample Volume (cu ft)	V(m)	(33.42)
Vol of Liquid Collected (ml)	Vl(c)	6.3
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.297)
Wt. of Front Half Particulate (gm)		0.0005
Wt. of Back Half Particulate (gm)		0.0032
Wt of Combined Particulate (gm)	M(p)	(0.0037)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.666
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	2.586
Avg Stack Temperature (degF)	T(s avg)	=	79.9
Average Meter Temperature (degF)	T(m avg)	=	96.3
Avg SQRT(dP)		=	0.802

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	31.52
Stack Gas Water Vapor Proportion	B(wo)	=	0.009
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.74
Abs Stack Pressure (in Hg)	P(s)	=	29.85
Avg Stack Velocity (ft/sec)	V(s avg)	=	45.7
Isokineticity (%)	% I	=	98.6
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	25498
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	26382
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0018
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.2536
Particulate Emission Rate(lb/hr)	E(p)	=	0.396

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	0.920	3.56	82	85	85	0.9592
2	2.5	0.950	3.62	81	93	93	0.9747
3	2.5	0.970	3.70	80	93	93	0.9849
4	2.5	0.910	3.47	80	94	93	0.9539
5	2.5	0.550	2.10	80	95	93	0.7416
6	2.5	0.170	0.65	79	98	95	0.4123
7	2.5	0.300	1.15	78	99	95	0.5477
8	2.5	0.600	2.31	79	99	96	0.7746
9	2.5	0.720	2.77	79	99	96	0.8485
10	2.5	0.680	2.62	79	101	96	0.8246
11	2.5	0.680	2.62	79	101	96	0.8246
12	2.5	0.590	2.72	79	101	96	0.7681
13	2.5	0.620	2.38	81	104	97	0.7874
14	2.5	0.650	2.49	81	104	97	0.8062
15	2.5	0.680	2.63	81	104	97	0.8246
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	37.5	9.990	38.79	1198	1470	1418	12.0331

ISOKINETIC PERFORMANCE WORKSHEET AND PARTICULATE CALCULATIONS

Plant: USMCLB, Yermo
Date: 9/20/93

Performed by: BKL
Sample Location: SOUTH EXHAUST

Test No./Type: 9/EPA METHOD 5
Start/Stop Time: 1202-1238

PARAMETER	SYMBOL	VALUE (calc.)
Nozzle Diameter, Actual (in)	N(d)	0.242
Pitot Tube Correction Factor	C(p)	0.8400
Gas Meter Correction Factor	(gamma)	1.0190
Barometric Pressure (in Hg)	P(b)	29.87
Stack Pressure (in H2O)	P(stack)	-0.330
# of Sample Points	#	15
Total Sampling Time (min)	(theta)	(36.00)
Stack (Duct) Dimensions (in):		
Radius (if round)	R	21.00
Length (if rectangular)	L	0.00
Width (if rectangular)	W	0.00
Area of Stack (sq ft)	A(s)	(9.62)
Gas Meter Initial Reading (cu ft)		572.86
Gas Meter Final Reading (cu ft)		601.56
Net Gas Sample Volume (cu ft)	V(m)	(28.70)
Vol of Liquid Collected (ml)	Vl(c)	3.0
Vol of Liq @ Std. Conds. (scf)	V(w std)	(0.141)
Wt. of Front Half Particulate (gm)		0.0004
Wt. of Back Half Particulate (gm)		0.0033
Wt of Combined Particulate (gm)	M(p)	(0.0037)
O2 Concentration (by CEM)	% O2	20.90
CO2 Concentration (by CEM)	% CO2	0.04
CO Concentration (by CEM)	% CO	0.0
N2 Concentration (by diff.)	% N2	(79.06)

FIELD DATA AVERAGES

Avg Velocity Head (in H2O)	dP(avg)	=	0.543
Avg Orifice Meter Reading (in H2O)	dH(avg)	=	1.989
Avg Stack Temperature (degF)	T(s avg)	=	98.9
Average Meter Temperature (degF)	T(m avg)	=	97.5
Avg SQRT(dP)		=	0.726

CALCULATED VALUES

Meter Volume (std, cu. ft.)	V(m std)	=	27.78
Stack Gas Water Vapor Proportion	B(wo)	=	0.005
Mol. Wt., Stack Gas Dry	M(d)	=	28.84
Mol. Wt., Stack Gas Wet	M(s)	=	28.79
Abs Stack Pressure (in Hg)	P(s)	=	29.85
Avg Stack Velocity (ft/sec)	V(s avg)	=	42.1
Isokineticity (%)	% I	=	102.2
Stack Gas STD Vol Flow (dscfm)	Q(s)	=	22768
Actual Stack Gas Vol Flow (acfm)	Q(a)	=	24285
Particulate Loading, dry (gr/dscf)	C(s std)	=	0.0021
Particulate Loading, dry @7% O2 (gr/dscf)		=	0.2877
Particulate Emission Rate(lb/hr)	E(p)	=	0.401

Sample Point	dClock Time	Velocity Head, dP (in H2O)	Orifice Meter,dH (in H2O)	Stack Temp (degF)	Gas Temp in	Meter (degF) out	SQRT(dP)
1	2.5	0.720	2.61	100	93	93	0.8485
2	2.5	0.670	2.44	99	94	93	0.8185
3	2.5	0.640	2.33	100	96	93	0.8000
4	2.5	0.610	2.23	97	98	93	0.7810
5	2.5	0.470	1.72	98	99	93	0.6856
6	2.5	0.110	0.40	97	100	94	0.3317
7	2.5	0.290	1.07	96	99	94	0.5385
8	2.5	0.520	1.91	98	100	95	0.7211
9	2.5	0.570	2.08	101	103	94	0.7550
10	2.5	0.580	2.14	97	104	95	0.7616
11	2.5	0.580	2.13	100	104	96	0.7616
12	2.5	0.580	2.13	100	105	96	0.7616
13	2.5	0.600	2.21	99	105	96	0.7746
14	2.5	0.590	2.17	100	104	96	0.7681
15	1	0.620	2.27	102	104	96	0.7874
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
							0.0000
TOTALS	36	8.150	29.84	1484	1508	1417	10.8948

C.7

TEST:	PARTICULATE #1		BARSTOW MCLB
DATE:	09/23/93 AM		AREA 11 TESTS
METHOD:	NIOSH 500		ACUREX PROJECT 8517
	D E Initials:	ljl	Print Date:
	Q A Initials:	wdu	04/11/94

PARTICULATE (mg/M3)

G1	G2	G3
no sample	5.7	3.3
G4	G5	G6
57.1	49.4	37.0
		40.6
G7	G8	G9
168	218	100
G10	G11	G12
339	466	203
	405	
G13	G14	G15
402	665	251
G16	G17	G18
292	423	129

Painter 1	7.8
Painter 2	28.4

Blank	0.01 mg/filter

TEST: PARTICULATE #2
DATE: 09/23/93 PM
METHOD: NIOSH 500

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu

Print Date: 04/11/94

PARTICULATE (mg/M3)

G1 32.1	G2 23.0	G3 15.1
G4 97.5	G5 134	G6 118, 160
G7 168	G8 309	G9 no sample
G10 210	G11 382, 318	G12 523
G13 173	G14 509	G15 485
G16 137	G17 368	G18 235

Painter 1	5.7
Painter 2	17.9

Blank	0.02 mg/filter

C-7

TEST: PARTICULATE #1
DATE: 09/23/93 AM
METHOD: NIOSH 500

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/11/94

BOOTH TEMP.: 73 P Barr: 29.97

GRID LOC	FILTER NUMBER	Sample Time (min)	Pump #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	WEIGHT (Mg)	VOL (L) @ STP	Particulate (mg/M3)
Grid 1	169	0	7	2015	2004	930548	0.30	0.00	no sample
Grid 2	168	30	12	1962	1958	930549	0.33	58.35	5.7E+00
Grid 3	167	30	10	2025	2000	930550	0.20	59.91	3.3E+00
Grid 4	173	29	22	2009	1985	930551	3.28	57.47	5.7E+01
Grid 5	178	30	26	2024	2012	930552	2.97	60.07	4.9E+01
Grid 6	166	30	8	1990	1990	930553	2.19	59.24	3.7E+01
Grid 7	174	29	15	2025	1989	930554	9.72	57.75	1.7E+02
Grid 8	179	30	16	2011	1969	930555	12.92	59.24	2.2E+02
Grid 9	155	30	13	2024	2005	930556	6.00	59.97	1.0E+02
Grid 10	184	30	14	1967	1948	930557	19.77	58.27	3.4E+02
Grid 11	165	30	17	2009	1959	930558	27.50	59.06	4.7E+02
Grid 12	160	30	19	2006	1948	930559	11.97	58.85	2.0E+02
Grid 13	163	29	31	1994	1941	930560	22.75	56.62	4.0E+02
Grid 14	156	29	20	1982	1970	930561	37.80	56.86	6.6E+02
Grid 15	161	30	25	2036	2001	930562	15.07	60.09	2.5E+02
Grid 16	157	30	3	1973	1924	930563	16.92	58.00	2.9E+02
Grid 17	164	30	9	2024	2005	930564	25.39	59.97	4.2E+02
Grid 18	162	30	18	2017	2005	930565	7.72	59.86	1.3E+02
Painter 1	180	30	23	2023	2003	930569	0.47	59.92	7.8E+00
Painter 2	185	30	4	1963	1936	930570	1.65	58.03	2.8E+01
Grid 6 Dup	172	30	5	1986	1987	930566	2.40	59.13	4.1E+01
Grid 11 Dup	159	30	29	2019	1980	930567	24.10	59.52	4.0E+02
Field Blank	158	30	NA	2000	2000	930568	0.01	59.54	1.7E-01

Notes: Lab results are reported to .01 mg (2 decimal places, not 2 significant figures)

C.7

TEST: PARTICULATE #2
DATE: 09/23/93 PM
METHOD: NIOSH 500

BARSTOW MCLB
AREA 11 TESTS
ACUREX PROJECT 8517

D E Initials: ljl
Q A Initials: wdu
Print Date: 04/11/94

BOOTH TEMPERATURE: 78 P Barr: 29.97

GRID LOC	FILTER NUMBER	SPL TIME (min)	Pump #	PRE-Cal (ml/min)	POST-Cal (ml/min)	ACUREX Sample #	WEIGHT (Mg)	VOL (L) @ STP	Particulate (mg/M3)
Grid 1	192	28	16	1969	2016	930573	1.76	54.84	3.2E+01
Grid 2	193	28	25	2001	2003	930574	1.27	55.11	2.3E+01
Grid 3	195	29	18	2005	2031	930575	0.87	57.53	1.5E+01
Grid 4	206	28	26	2012	2027	930576	5.42	55.59	9.8E+01
Grid 5	198	28	15	1989	2049	930577	7.43	55.57	1.3E+02
Grid 6	208	29	17	1959	2020	930578	6.69	56.72	1.2E+02
Grid 7	203	28	13	2005	2025	930579	9.31	55.46	1.7E+02
Grid 8	196	28	22	1985	1959	930580	16.75	54.28	3.1E+02
Grid 9	213	0	7	2004	2029	930581	17.81	0.00	no sample
Grid 10	205	28	10	2000	2026	930582	11.61	55.41	2.1E+02
Grid 11	199	28	29	1980	1965	930583	20.73	54.29	3.8E+02
Grid 12	212	28	19	1948	1974	930584	28.21	53.98	5.2E+02
Grid 13	202	28	12	1958	1984	930585	9.36	54.25	1.7E+02
Grid 14	201	28	20	1970	1986	930586	27.72	54.45	5.1E+02
Grid 15	210	29	8	1990	2027	930587	27.77	57.26	4.8E+02
Grid 16	207	28	31	1941	1931	930588	7.31	53.29	1.4E+02
Grid 17	200	28	3	1985	1993	930589	20.12	54.75	3.7E+02
Grid 18	209	28	14	1948	1951	930590	12.61	53.66	2.3E+02
Painter 1	191	28	4	1955	1966	930594	0.31	53.96	5.7E+00
Painter 2	190	28	23	2003	1973	930595	0.98	54.72	1.8E+01
Grid 6 Dup	204	28	5	1981	2008	930591	8.80	54.90	1.6E+02
Grid 11 Dup	197	28	9	2005	1997	930592	17.51	55.08	3.2E+02
Field Blank	194	29	NA	2000	2000	930593	0.02	57.02	3.5E-01

Notes: Lab results are reported to .01 mg (2 decimal places. not 2 significant figures)

Example Spreadsheet - Not Final Split Height

C8

SPLIT HEIGHT CALCULATION WORKSHEET - BOOTH 1

SPLIT HEIGHT, a: 7.8 FEET FROM BOTTOM OF BOOTH

BOOTH FLOWRATE: 36000 CFM (PROJECTED) EXHAUST FLOWRATE: 20255 CFM

EXPOSURE RATIO (RECIRC): 0.63 E.R. MET: 0.03
E.R. ISO: 0.18
EXPOSURE RATIO (PAINTER, W/OUT RECIRC): E.R. ORG: 0.41

CALC'ED W/AVG CONCENTRATION:
CALC'ED W/MAX CONCENTRATION 41.1

*** USED TOPCOAT DATA FOR METALS, ORGANICS AND HDI CONCENTRATIONS (MAXIMUMS)

1/4

Booth 2 C.8

TOTAL CHROMIUM

TWA = 0.5 mg/m^3
MASS FLOWRATE = 0.41 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.1	0.032	6.7	100.0
2.0	0.037	7.8	93.3 *
2.8	0.042	8.8	85.5 *
3.6	0.047	9.7	76.8 *
4.5	0.052	10.8	67.0
5.3	0.051	10.5	56.2 *
6.1	0.049	10.2	45.7
7.0	0.039	8.2	35.4 *
7.8	0.031	6.5	27.2
8.6	0.027	5.6	20.8 *
9.5	0.022	4.6	15.2 *
10.3	0.018	3.8	10.6 *
11.1	0.015	3.1	6.7 *
12.0	0.011	2.2	3.7 *
12.8	0.007	1.5	1.5

% EMISSIONS OVER a: 27 %

RECIRC [ ] : 1.76E-04 mg/m^3
CONC/TWA : 0.00

HDI

TWA = 0.035 mg/m^3
MASS FLOWRATE = < 14 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.1	0.0039	7.2	100.0
2.0	0.0045	8.3	92.8 *
2.8	0.0051	9.3	84.5 *
3.6	0.0056	10.3	75.1 *
4.5	0.0062	11.4	64.8
5.3	0.0056	10.3	53.4 *
6.1	0.0050	9.2	43.0
7.0	0.0044	8.2	33.8 *
7.8	0.0039	7.2	25.6
8.6	0.0030	5.6	18.4 *
9.5	0.0020	3.7	12.9
10.3	0.0017	3.1	9.2 *
11.1	0.0014	2.6	6.1 *
12.0	0.0011	2.0	3.4 *
12.8	0.0008	1.5	1.5

% EMISSIONS OVER a: 26 %

RECIRC [ ] : 5.66E-03 mg/m^3
CONC/TWA : 0.162

ZINC

TWA = 1 mg/m^3
MASS FLOWRATE = 75 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.1	0.50	6.9	100.0
2.0	0.58	8.1	93.1 *
2.8	0.66	9.1	85.0 *
3.6	0.74	10.2	75.8 *
4.5	0.82	11.4	65.7
5.3	0.77	10.6	54.3 *
6.1	0.71	9.8	43.7
7.0	0.58	8.0	33.9 *
7.8	0.46	6.4	25.9
8.6	0.38	5.3	19.5 *
9.5	0.29	4.0	14.2
10.3	0.25	3.4	10.2 *
11.1	0.21	2.9	6.8 *
12.0	0.16	2.2	3.9 *
12.8	0.12	1.7	1.7

% EMISSIONS OVER a: 26 %

RECIRC [ ] : 3.06E-02 mg/m^3
CONC/TWA : 0.03

MEK

TWA = 590 mg/m^3
MASS FLOWRATE = 7200 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.1	7.6	7.1	100.0
2.0	8.3	7.8	92.9 *
2.8	8.9	8.4	85.1 *
3.6	9.5	8.9	76.7 *
4.5	10.2	9.6	67.8
5.3	9.5	8.9	58.2 *
6.1	8.7	8.2	49.4
7.0	8.2	7.7	41.2 *
7.8	7.7	7.2	33.5
8.6	7.0	6.6	26.3 *
9.5	6.2	5.8	19.8
10.3	5.2	4.9	13.9 *
11.1	4.3	4.0	9.0 *
12.0	3.2	3.0	5.0 *
12.8	2.2	2.1	2.1

% EMISSIONS OVER a: 34 %

RECIRC [ ] : 3.81E+00 mg/m^3
CONC/TWA : 0.01

2/4

Booth 1 C.8

ETHYL BENZENE

TWA = 435 mg/m^3
MASS FLOWRATE = 4900 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.1	4.2	7.4	100.0
2.0	4.7	8.1	92.6 *
2.8	5.1	8.8	84.5 *
3.6	5.5	9.5	75.6 *
4.5	5.9	10.3	66.1
5.3	5.4	9.4	55.8 *
6.1	4.8	8.4	46.4
7.0	4.3	7.6	38.0 *
7.8	3.9	6.8	30.4
8.6	3.6	6.3	23.6 *
9.5	3.2	5.6	17.3 *
10.3	2.6	4.6	11.7 *
11.1	2.0	3.5	7.2 *
12.0	1.3	2.3	3.6 *
12.8	0.7	1.3	1.3

% EMISSIONS OVER a: 30 %

RECIRC [ ] : 2.35E+00 mg/m^3
CONC/TWA : 0.01

XYLENES

TWA = 435 mg/m^3
MASS FLOWRATE = 19000 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.1	18.9	7.9	100.0
2.0	20.4	8.5	92.1 *
2.8	21.8	9.0	83.7 *
3.6	23.1	9.6	74.6 *
4.5	24.6	10.2	65.0
5.3	22.5	9.4	54.8 *
6.1	20.4	8.5	45.4
7.0	18.4	7.6	36.9 *
7.8	16.6	6.9	29.3
8.6	14.7	6.1	22.4 *
9.5	12.6	5.2	16.3
10.3	10.3	4.3	11.0 *
11.1	7.9	3.3	6.8 *
12.0	5.3	2.2	3.5 *
12.8	3.0	1.2	1.2

% EMISSIONS OVER a: 29 %

RECIRC [ ] : 8.78E+00 mg/m^3
CONC/TWA : 0.02

n-BUTYL ACETATE

TWA = 710 mg/m^3
MASS FLOWRATE = 15000 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.1	15.7	7.8	100.0
2.0	17.0	8.5	92.2 *
2.8	18.1	9.0	83.7 *
3.6	19.2	9.6	74.6 *
4.5	20.5	10.2	65.0
5.3	18.7	9.3	54.8 *
6.1	16.8	8.4	45.4
7.0	15.2	7.6	37.0 *
7.8	13.8	6.9	29.4
8.6	12.2	6.1	22.5 *
9.5	10.5	5.2	16.4
10.3	8.6	4.3	11.2 *
11.1	6.7	3.3	6.9 *
12.0	4.5	2.3	3.6 *
12.8	2.6	1.3	1.3

% EMISSIONS OVER a: 29 %

RECIRC [ ] : 6.96E+00 mg/m^3
CONC/TWA : 0.01

MIAK

TWA = 234 mg/m^3
MASS FLOWRATE = 160000 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.1	198.0	8.0	100.0
2.0	216.0	8.8	92.0 *
2.8	232.0	9.4	83.2 *
3.6	248.0	10.1	73.8 *
4.5	266.0	10.8	63.7
5.3	229.0	9.3	52.9 *
6.1	192.0	7.8	43.7
7.0	181.4	7.4	35.9 *
7.8	172.0	7.0	28.5
8.6	149.4	6.1	21.5 *
9.5	124.0	5.0	15.5
10.3	100.7	4.1	10.4 *
11.1	77.5	3.1	6.4 *
12.0	51.3	2.1	3.2 *
12.8	28.0	1.1	1.1

% EMISSIONS OVER a: 29 %

RECIRC [ ] : 7.19E+01 mg/m^3
CONC/TWA : 0.31

3/11

Booth 1 C-8

TOLUENE

TWA = 188 mg/m^3
3700 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.1	3.2	7.2	100.0
2.0	3.5	7.9	92.8 *
2.8	3.8	8.5	84.9 *
3.6	4.0	9.1	76.4 *
4.5	4.3	9.7	67.4
5.3	4.0	8.9	57.7 *
6.1	3.6	8.1	48.7
7.0	3.4	7.7	40.6 *
7.8	3.2	7.2	33.0
8.6	2.9	6.5	25.7 *
9.5	2.5	5.6	19.2 *
10.3	2.1	4.8	13.6 *
11.1	1.7	3.9	8.8 *
12.0	1.3	2.9	4.9 *
12.8	0.9	2.0	2.0

% EMISSIONS OVER a: 33 %

RECIRC [ ] : 1.92E+00 mg/m^3
CONC/TWA : 0.01

HEXYL ACETATE

TWA = 300 mg/m^3
MASS FLOWRATE = 4300 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.1	3.2	8.3	100.0
2.0	3.4	8.9	91.7 *
2.8	3.7	9.5	82.8 *
3.6	3.9	10.0	73.3 *
4.5	4.1	10.7	63.2
5.3	3.5	9.1	52.6 *
6.1	2.9	7.5	43.5
7.0	2.8	7.4	36.0 *
7.8	2.8	7.3	28.6
8.6	2.4	6.3	21.3 *
9.5	2.0	5.2	15.0
10.3	1.6	4.1	9.8 *
11.1	1.2	3.1	5.7 *
12.0	0.7	1.8	2.6 *
12.8	0.3	0.8	0.8

% EMISSIONS OVER a: 29 %

RECIRC [ ] : 1.94E+00 mg/m^3
CONC/TWA : 0.01

n-BUTYL ALCOHOL

TWA = 150 mg/m^3
MASS FLOWRATE = 95 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.1	0.07	5.3	100.0
2.0	0.09	7.1	94.7 *
2.8	0.12	8.7	87.6 *
3.6	0.14	10.3	79.0 *
4.5	0.16	12.1	68.7
5.3	0.12	8.7	56.6 *
6.1	0.07	5.3	47.9
7.0	0.07	5.3	42.6 *
7.8	0.07	5.3	37.4
8.6	0.07	5.6	32.1 *
9.5	0.08	6.0	26.4
10.3	0.08	5.7	20.4 *
11.1	0.07	5.3	14.7 *
12.0	0.06	4.9	9.4 *
12.8	0.06	4.5	4.5

% EMISSIONS OVER a: 37 %

RECIRC [ ] : 5.59E-02 mg/m^3
CONC/TWA : 0.00

PGMEA

TWA = 120 mg/m^3
MASS FLOWRATE = 1600 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.1	1.0	7.4	100.0
2.0	1.0	7.6	92.6 *
2.8	1.1	7.8	85.0 *
3.6	1.1	8.0	77.2 *
4.5	1.1	8.2	69.2
5.3	1.2	8.5	61.0 *
6.1	1.2	8.9	52.5
7.0	1.3	9.6	43.6 *
7.8	1.3	9.6	34.0
8.6	1.0	7.6	24.3 *
9.5	0.7	5.2	16.8
10.3	0.6	4.3	11.6 *
11.1	0.5	3.4	7.3 *
12.0	0.3	2.4	3.9 *
12.8	0.2	1.5	1.5

% EMISSIONS OVER a: 34 %

RECIRC [ ] : 8.56E-01 mg/m^3
CONC/TWA : 0.01

4/4

C.8

SPLIT HEIGHT CALCULATION WORKSHEET - AREA 11 CONVEYOR BOOTH (BOOTH 2)
**** ASSUME 99% CONTROL EFFICIENCY, CHROMIUM IS 50% HEXAVALENT ****

SPLIT HEIGHT, a: 6.5

BOOTH FLOWRATE: 32000 CFM (PROJECTED) EXHAUST FLOWRATE 21761

EXPOSURE RATIO (RECIRC): 0.55

E.R. MET: 0.41
E.R. ISO: 0.01
E.R. ORG: 0.06
E.R. PH AC: 0.07

EXPOSURE RATIO (PAINTER, W/OUT RECIRC):

CALC'ED W/MAX CONCENTRATIO 108

EXAMPLE SPREADSHEET
NOT AT FINAL SPLIT HEIGHT

1/5

MEK

TWA = 590 mg/m^3
MASS FLOWRATE = 8120 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	35	14.1	100.0
1.5	31	12.4	85.9
2.0	27	10.7	73.6
2.5	22	8.9	62.9
3.0	18	7.2	54.0
3.5	18	7.2	46.7
4.0	18	7.2	39.5
4.5	17	6.8	32.2
5.0	15	5.8	25.4
5.5	12	4.8	19.6
6.0	9.8	3.9	14.8
6.5	7.7	3.1	10.8
7.0	5.6	2.3	7.7
7.5	4.7	1.9	5.5
8.0	3.9	1.5	3.6
8.5	3.0	1.2	2.0
9.0	2.1	0.8	0.8

% EMISSIONS OVER a: 11 %

RECIRC [ ] : 1.49E+00 mg/m^3
CONC/TWA : 0.00

XYLENES

TWA = 435 mg/m^3
MASS FLOWRATE = 4980 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	8.2	7.6	100.0
1.5	8.6	8.0	92.4
2.0	9.0	8.3	84.4
2.5	9.3	8.7	76.1
3.0	9.7	9.0	67.5
3.5	10	9.5	58.5
4.0	11	9.9	49.0
4.5	9.7	9.0	39.1
5.0	8.6	8.0	30.1
5.5	6.9	6.4	22.1
6.0	5.3	5.0	15.7
6.5	3.9	3.6	10.8
7.0	2.5	2.3	7.1
7.5	2.0	1.9	4.8
8.0	1.5	1.4	2.9
8.5	1.1	1.0	1.5
9.0	0.57	0.5	0.5

% EMISSIONS OVER a: 11 %

RECIRC [ ] : 9.11E-01 mg/m^3
CONC/TWA : 0.00

ETHYL BENZENE

TWA = 435 mg/m^3
MASS FLOWRATE = 1320 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	1.8	6.5	100.0
1.5	2.0	7.3	93.5
2.0	2.2	8.0	86.2
2.5	2.4	8.7	78.2
3.0	2.6	9.4	69.5
3.5	2.7	9.7	60.1
4.0	2.8	10.0	50.3
4.5	2.6	9.5	40.3
5.0	2.2	8.0	30.8
5.5	1.8	6.4	22.8
6.0	1.38	5.0	16.4
6.5	1.01	3.7	11.4
7.0	0.64	2.3	7.7
7.5	0.53	1.9	5.4
8.0	0.43	1.5	3.5
8.5	0.32	1.2	1.9
9.0	0.21	0.8	0.8

% EMISSIONS OVER a: 11 %

RECIRC [ ] : 2.55E-01 mg/m^3
CONC/TWA : 0.00

PGMEA

TWA = 120 mg/m^3
MASS FLOWRATE = 57.5 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	0.09	1.0	100.0
1.5	0.34	3.6	99.0
2.0	0.60	6.3	95.4
2.5	0.85	9.0	89.1
3.0	1.1	11.7	80.0
3.5	1.1	12.1	68.3
4.0	1.2	12.5	56.2
4.5	1.0	11.1	43.6
5.0	0.90	9.6	32.6
5.5	0.69	7.3	23.0
6.0	0.51	5.4	15.7
6.5	0.36	3.8	10.2
7.0	0.21	2.2	6.4
7.5	0.17	1.8	4.2
8.0	0.12	1.3	2.4
8.5	0.08	0.8	1.1
9.0	0.03	0.3	0.3

% EMISSIONS OVER a: 10 %

RECIRC [ ] : 9.99E-03 mg/m^3
CONC/TWA : 0.00

2/5

Booth 2 C-8

n-BUTYL ACETATE

TWA = 710 mg/m^3
MASS FLOWRATE = 4410 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	14	11.2	100.0
1.5	13	10.6	88.8
2.0	13	10.0	78.2
2.5	12	9.4	68.2
3.0	11	8.8	58.8
3.5	11	9.1	50.0
4.0	12	9.4	40.9
4.5	11	9.0	31.5
5.0	9.6	7.7	22.5
5.5	7.9	6.3	14.8
6.0	5.6	4.5	8.5
6.5	2.9	2.4	4.0
7.0	0.28	0.2	1.6
7.5	0.35	0.3	1.4
8.0	0.41	0.3	1.1
8.5	0.48	0.4	0.8
9.0	0.54	0.4	0.4

% EMISSIONS OVER a: 4 %

RECIRC [ ] : 2.99E-01 mg/m^3
CONC/TWA : 0.00

MIAK

TWA = 234 mg/m^3
MASS FLOWRATE = 45000 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	35	4.8	100.0
1.5	45	6.2	95.2
2.0	56	7.6	89.0
2.5	66	9.0	81.5
3.0	76	10.4	72.5
3.5	76	10.4	62.1
4.0	76	10.4	51.7
4.5	71	9.8	41.3
5.0	60	8.2	31.6
5.5	49	6.6	23.4
6.0	38	5.2	16.7
6.5	28	3.8	11.5
7.0	18	2.5	7.7
7.5	15	2.0	5.3
8.0	11	1.5	3.3
8.5	8.0	1.1	1.7
9.0	4.6	0.6	0.6

% EMISSIONS OVER a: 12 %

RECIRC [ ] : 8.82E+00 mg/m^3
CONC/TWA : 0.04

TOLUENE

TWA = 188 mg/m^3
MASS FLOWRATE = 6750 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	22	10.2	100.0
1.5	21	9.7	89.8
2.0	20	9.3	80.1
2.5	19	8.8	70.8
3.0	18	8.3	62.0
3.5	18	8.3	53.6
4.0	18	8.3	45.3
4.5	17	8.0	36.9
5.0	15	7.0	29.0
5.5	13	6.0	22.0
6.0	10	4.8	16.0
6.5	7.3	3.4	11.3
7.0	4.4	2.0	7.9
7.5	3.9	1.8	5.8
8.0	3.4	1.6	4.0
8.5	2.9	1.3	2.5
9.0	2.4	1.1	1.1

% EMISSIONS OVER a: 11 %

RECIRC [ ] : 1.29E+00 mg/m^3
CONC/TWA : 0.01

n-BUTYL ALCOHOL

TWA = 150 mg/m^3
MASS FLOWRATE = 5420 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	26	8.0	100.0
1.5	27	8.2	92.0
2.0	27	8.3	83.8
2.5	28	8.5	75.5
3.0	28	8.6	67.0
3.5	28	8.6	58.4
4.0	28	8.6	49.8
4.5	27	8.3	41.2
5.0	25	7.5	32.9
5.5	22	6.8	25.3
6.0	18	5.5	18.5
6.5	12	3.8	13.1
7.0	6.7	2.1	9.3
7.5	6.4	2.0	7.3
8.0	6.1	1.9	5.3
8.5	5.7	1.8	3.4
9.0	5.4	1.7	1.7

% EMISSIONS OVER a: 13 %

RECIRC [ ] : 1.20E+00 mg/m^3
CONC/TWA : 0.01

C.8 3/5

BOOTH 2

Booth 2 C.8

HEXAVALENT CHROMIUM

TWA = 0.001 mg/m^3
MASS FLOWRATE = 1.3 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	0.17	6.9	100.0
1.5	0.18	7.4	93.1
2.0	0.19	7.8	85.7
2.5	0.20	8.2	77.9
3.0	0.21	8.6	69.8
3.5	0.22	8.9	61.2
4.0	0.21	8.6	52.3
4.5	0.19	7.8	43.7
5.0	0.17	6.9	35.9
5.5	0.15	6.1	29.0
6.0	0.13	5.3	22.9
6.5	0.11	4.6	17.6
7.0	0.096	3.9	13.0
7.5	0.080	3.3	9.1
8.0	0.064	2.6	5.8
8.5	0.047	1.9	3.2
9.0	0.031	1.3	1.3

% EMISSIONS OVER a: 18 %

RECIRC [ ] : 3.88E-04 mg/m^3
CONC/TWA : 0.39

ZINC

TWA = 0.5 mg/m^3
MASS FLOWRATE = 36.14 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	0.17	6.9	100.0
1.5	0.18	7.4	93.1
2.0	0.19	7.8	85.7
2.5	0.20	8.2	77.9
3.0	0.21	8.6	69.8
3.5	0.22	8.9	61.2
4.0	0.21	8.6	52.3
4.5	0.19	7.8	43.7
5.0	0.17	6.9	35.9
5.5	0.15	6.1	29.0
6.0	0.13	5.3	22.9
6.5	0.11	4.6	17.6
7.0	0.096	3.9	13.0
7.5	0.080	3.3	9.1
8.0	0.064	2.6	5.8
8.5	0.047	1.9	3.2
9.0	0.031	1.3	1.3

% EMISSIONS OVER a: 18 %

RECIRC [ ] : 1.08E-02 mg/m^3
CONC/TWA : 0.02

HEXYL ACETATE

TWA = 300 mg/m^3
MASS FLOWRATE = 2870 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	12	12.6	100.0
1.5	11	11.7	87.4
2.0	10	10.8	75.7
2.5	9.4	9.9	64.9
3.0	8.5	8.9	55.0
3.5	8.1	8.5	46.1
4.0	7.7	8.1	37.5
4.5	7.0	7.4	29.4
5.0	5.8	6.1	22.0
5.5	4.5	4.7	16.0
6.0	3.5	3.7	11.2
6.5	2.6	2.7	7.6
7.0	1.7	1.8	4.9
7.5	1.3	1.4	3.1
8.0	0.93	1.0	1.7
8.5	0.54	0.6	0.7
9.0	0.15	0.2	0.2

% EMISSIONS OVER a: 8 %

RECIRC [ ] : 3.70E-01 mg/m^3
CONC/TWA : 0.00

HDI

TWA = 0.035 mg/m^3
MASS FLOWRATE = 4.16 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	281	7.6	100.0
1.5	321	8.7	92.4
2.0	360	9.8	83.6
2.5	400	10.9	73.8
3.0	439	11.9	63.0
3.5	397	10.8	51.0
4.0	356	9.7	40.2
4.5	314	8.5	30.5
5.0	254	6.9	22.0
5.5	194	5.3	15.1
6.0	134	3.6	9.8
6.5	92	2.5	6.2
7.0	49	1.3	3.7
7.5	38	1.0	2.3
8.0	27	0.7	1.3
8.5	16	0.4	0.6
9.0	5	0.1	0.1

% EMISSIONS OVER a: 6 %

RECIRC [ ] : 4.36E-04 mg/m^3
CONC/TWA : 0.01

4/5

Booth 2 C-8

TRIVALENT CHROMIUM

TWA = 0.5 mg/m^3

MASS FLOWRATE = 1.3 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	0.17	6.9	100.0
1.5	0.18	7.4	93.1
2.0	0.19	7.8	85.7
2.5	0.20	8.2	77.9
3.0	0.21	8.6	69.8
3.5	0.22	8.9	61.2
4.0	0.21	8.6	52.3
4.5	0.19	7.8	43.7
5.0	0.17	6.9	35.9
5.5	0.15	6.1	29.0
6.0	0.13	5.3	22.9
6.5	0.11	4.6	17.6
7.0	0.096	3.9	13.0
7.5	0.080	3.3	9.1
8.0	0.064	2.6	5.8
8.5	0.047	1.9	3.2
9.0	0.031	1.3	1.3

% EMISSIONS OVER a: 18 %

RECIRC [ ] : 3.88E-04 mg/m^3

CONC/TWA : 0.00

PHOSPHORIC ACID

TWA = 1 mg/m^3

MASS FLOWRATE = 226 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	0.17	6.9	100.0
1.5	0.18	7.4	93.1
2.0	0.19	7.8	85.7
2.5	0.20	8.2	77.9
3.0	0.21	8.6	69.8
3.5	0.22	8.9	61.2
4.0	0.21	8.6	52.3
4.5	0.19	7.8	43.7
5.0	0.17	6.9	35.9
5.5	0.15	6.1	29.0
6.0	0.13	5.3	22.9
6.5	0.11	4.6	17.6
7.0	0.096	3.9	13.0
7.5	0.080	3.3	9.1
8.0	0.064	2.6	5.8
8.5	0.047	1.9	3.2
9.0	0.031	1.3	1.3

% EMISSIONS OVER a: 18 %

RECIRC [ ] : 6.75E-02 mg/m^3

CONC/TWA : 0.07

5/5

C.8

SPLIT HEIGHT CALCULATION WORKSHEET - AREA 11 PALLET BOOTH (BOOTH 3)
**** 99% CHROME CAPTURE EFFICIENCY, 50% HEXAVALENT

SPLIT HEIGHT, a: 7 FEET FROM BOTTOM

BOOTH FLOWRATE: 22000 CFM (PROJECTED) EXHAUST FLOWRATE 16287

EXPOSURE RATIO (RECIRC): 0.31

E.R. MET:	0.21
E.R. ISO:	0.02
E.R. ORG:	0.05
E.R. PH AC:	0.03

EXAMPLE CALCULATION SPREADSHEET
NOT AT FINAL SPLIT HEIGHT

1/2

MEK

TWA = 590 mg/m^3
MASS FLOWRATE = 4060 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	4.0	11.6	100.0
2.0	4.0	11.6	88.4
3.0	4.0	11.6	76.7
4.0	5.7	16.4	65.1
5.0	7.3	21.2	48.6
6.0	4.8	14.0	27.4
7.0	2.3	6.7	13.4
8.0	1.5	4.5	6.7
9.0	0.8	2.2	2.2

% EMISSIONS OVER a: 13 %

RECIRC [ ] : 1.25E+00 mg/m^3
CONC/TWA : 0.00

XYLENES

TWA = 435 mg/m^3
MASS FLOWRATE = 2490 mg/min
RECIRC [ ] : 7.66E-01 mg/m^3
CONC/TWA : 0.00

n-BUTYL ACETATE

TWA = 710 mg/m^3
MASS FLOWRATE = 2210 mg/min
RECIRC [ ] : 6.80E-01 mg/m^3
CONC/TWA : 0.00

TOLUENE

TWA = 188 mg/m^3
MASS FLOWRATE = 3380 mg/min
RECIRC [ ] : 1.04E+00 mg/m^3
CONC/TWA : 0.01

HEXAVALENT CHROMIUM

TWA = 0.001 mg/m^3
MASS FLOWRATE = 0.65 mg/min
RECIRC [ ] : 2.00E-04 mg/m^3
CONC/TWA : 0.20

ZINC

TWA = 0.5 mg/m^3
MASS FLOWRATE = 18.07 mg/min
RECIRC [ ] : 5.56E-03 mg/m^3
CONC/TWA : 0.01

TRIVALENT CHROMIUM

TWA = 0.5 mg/m^3
MASS FLOWRATE = 0.65 mg/min
RECIRC [ ] : 2.00E-04 mg/m^3
CONC/TWA : 0.00

ETHYL BENZENE

TWA = 435 mg/m^3
MASS FLOWRATE = 660 mg/min

HEIGHT	[ ]	PERCENT	% OVER H
1.0	1.8	ERR	ERR
1.5	2.0	ERR	ERR *
2.0	2.2	ERR	ERR *
2.5	2.4	ERR	ERR *
3.0	2.6	ERR	ERR
3.7	2.7	ERR	ERR *
4.3	2.8	ERR	ERR
5.0	ERR	ERR	ERR *
9.0	0.21	ERR	ERR

% EMISSIONS OVER a: ERR %

RECIRC [ ] : 2.03E-01 mg/m^3
CONC/TWA : 0.00

PGMEA

TWA = 120 mg/m^3
MASS FLOWRATE = 28.7 mg/min
RECIRC [ ] : 8.83E-03 mg/m^3
CONC/TWA : 0.00

MIAK

TWA = 234 mg/m^3
MASS FLOWRATE = 22500 mg/min
RECIRC [ ] : 6.92E+00 mg/m^3
CONC/TWA : 0.03

n-BUTYL ALCOHOL

TWA = 150 mg/m^3
MASS FLOWRATE = 2710 mg/min
RECIRC [ ] : 8.33E-01 mg/m^3
CONC/TWA : 0.01

HEXYL ACETATE

TWA = 300 mg/m^3
MASS FLOWRATE = 1440 mg/min
RECIRC [ ] : 4.43E-01 mg/m^3
CONC/TWA : 0.00

HDI

TWA = 0.035 mg/m^3
MASS FLOWRATE = 2.08 mg/min
RECIRC [ ] : 6.40E-04 mg/m^3
CONC/TWA : 0.02

PHOSPHORIC ACID

TWA = 1 mg/m^3
MASS FLOWRATE = 113 mg/min
RECIRC [ ] : 3.48E-02 mg/m^3
CONC/TWA : 0.03

2/2

BOOTH 3 C-8

APPENDIX D

DETAILS OF TECHNOLOGY DEMONSTRATION STUDY RESULTS

This appendix includes additional discussion and supporting data pertaining to the Phase III Technology Demonstration Study results presented in Section 6. In addition to tabulated sampling results and summaries of the process data collected, a brief discussion of the OSHA Factor calculations that were performed is included. The appendix is organized such that each of the following subsections summarizes results obtained from specific measurement activities; supporting field and analytical data are provided in tabular form at the end of this appendix. The data sheets are labeled in the upper right hand corner with their corresponding Appendix section.

D.1 AIR FLOW RATE MEASUREMENTS

Several flow rate measurements were performed in Booths 1, 2 and 3. These data were necessary to assess the overall performance of the ventilation system in terms of volume flow rates achieved, and consistency over time of the VFDs. In all three paint booths, the flow rates remained relatively constant throughout the test series, demonstrating the successful application of VFDs to achieve the overall flow reduction goals of the EPA/USMC Technology Demonstration Program.

D.2 TOTAL ORGANIC CONCENTRATION MEASUREMENT RESULTS

Total organic concentrations were measured continuously in the paint booth exhaust and recirculation ducts according to EPA Method 25A. These results were combined with paint usage data to perform mass balance calculations; they also provided a means of assessing the quality of the FTIR data. Test results were recorded on strip-charts and by a data-logger system. Test averages corrected for analyzer drift and linearity are tabulated in the attached spreadsheets.

D.3 SPECIATED ORGANIC CONCENTRATION MEASUREMENT RESULTS

Speciated organic concentrations were measured in the paint booths and ventilation ducts during each painting cycle in accordance with NIOSH 1300. The exhaust face NIOSH 1300 sampling data were used to establish the vapor phase constituent concentration profiles reported in Section 4; the painter and recirculation duct data were used for the OSHA Factor calculations.

In the attached spreadsheets, NIOSH 1300 exhaust face row averages are presented for the speciated organic results for Booths 1, 2 and 3. Grid diagrams presenting exhaust grid concentration profiles are included. Following these diagrams are tabulated data representing the reduced field and analytical results for the painter vicinity, exhaust face, and ventilation duct sample sets.

D.4 COATING USAGE DATA AND VOC MASS BALANCE RESULTS

A VOC mass balance was performed for each test event in the Baseline Study test series; the mass balance results provided a means of assessing the quality and validity of organic and flow rate measurement data. Mass balance calculations were performed by reconciling the total quantity of solvent released in the booth by the painting operations with the quantity of solvent measured in the exhaust ducts via EPA Method 25A. The steps involved in performing a mass balance are:

1) The results from the paint percent volatile analyses were combined with the paint usage rate data to yield the quantity of solvent released into the booth during the paint cycle.

2) The EPA Method 25A measurement results were reduced and correlated with the NIOSH 1300 speciation results to calculate the quantity of solvent measured in the ventilation ducts. This was accomplished by calculating the contribution of each constituent to the total carbon measured in the stack. Total solvent mass was then calculated from the Method 25A concentration data, stack flow rate measurements, and test duration.

3) Agreement between the quantities derived from steps 1 and 2 was determined to assess the degree of closure achieved. The following equation defines how percent closure is calculated:

$$\% \ Closure = \frac{Mass_{in}}{Mass_{out}} * 10$$

The degree of closure achieved for each test ranged from 113 to 205 percent, the average was 145%. It is not surprising that these results reflect a high bias, because the closure ratio represents the mass of solvent released into the booth (from the coating usage data) divided by the mass of organic solvent measured in the recirculation duct. For this test series, the FID systems were often not left on for very long after painting was concluded, thus solvent vapors emitted while the workpieces dried were not always measured, because the FID instruments were off line. This caused a lower exhaust duct measurement than expected. Also, the workpieces were often removed from the booths before they were quite dry, thus solvent vapor released during curing was not collected by the booth ventilation system, and therefore was not measured.

D.5 METALS CONCENTRATION MEASUREMENT RESULTS

Total chromium and zinc concentrations were measured in the Booth 1 recirculation ducts and hexavalent chromium was measured in the Booth 3 and 3 recirculation ducts to determine the impact of these constituents on the calculated recirculation duct OSHA Factor results. As

discussed in Section D.8, there were some minor problems encountered with the EPA Method 0061 sampling procedure; and it was only possible to obtain hexavalent chrome results for the Booth 2 and 3 ventilation ducts.

In the attached spreadsheets, NIOSH 7300 exhaust face row averages are presented for Booths 1, 2, and 3. Grid diagrams presenting exhaust concentration profiles are also included. Following these diagrams are tabulated data representing the reduced field and analytical results for the painter vicinity, exhaust face, and ventilation duct sample sets. Finally, EPA Method 0060 and 0061 isokinetic spreadsheets containing recirculation duct metal concentration results are included for Booths 1, 2, and 3.

D.6 ISOCYANATE AND PHOSPHORIC ACID MEASUREMENT RESULTS

HDI and phosphoric acid concentrations were measured in the recirculation ducts and in the painter vicinity in all three booths. OSHA 42 was used for the in-booth isocyanate samples, and a draft isokinetic method recently developed by the EPA was employed in the recirculation ducts. NIOSH 7903 was used for all the phosphoric acid sampling. Reduced field and analytical data collected from these sampling activities are provided in the attached spreadsheets.

D.7 OSHA FACTOR CALCULATIONS

As discussed in Section 6, the data obtained from the recirculation duct and painter vicinity sampling activities were used to calculate the OSHA Factor results achieved at these locations. These results are discussed in detail in the body of the report, and will therefore not be reproduced here. However, it is appropriate to provide some comments regarding the PELs that were used to derive these OSHA Factors. In general, the 8-hour TWA levels were employed to derive the calculated OSHA Factor results. However, for some compounds, OSHA has not established appropriate PEL values. In these instances, the 8-hour TWA values recommended by NIOSH were substituted. The PELs that were employed for determining the OSHA Factor results for the Technology Demonstration Study are summarized in Table D-1.

As indicated in Table D-1, the NIOSH 8-hour TWA for hexavalent chromium was used in the OSHA Factor calculations because OSHA has only established a ceiling value which, interestingly enough, applies to CrO_3, rather than to hexavalent chromium (Cr^{+6}). The OSHA ceiling CrO_3 value is 0.1 mg/m^3, which corresponds to 0.052 mg/m^3 of Cr^{+6}. Thus the OSHA ceiling value is 50 times greater than the PEL value employed in the OSHA Factor calculations.

D.8 TECHNOLOGY DEMONSTRATION STUDY QA/QC RESULTS SUMMARY

A number of QA/QC procedures were implemented to assess the quality of the data reported in this Appendix. The objectives for the data quality indicators (DQI) specified in the Technology Demonstration Study QAPjP provide the basis for this data quality assessment; these DQI objectives are summarized in Table D-2. The results of the QA/QC efforts are summarized in this section and organized according to specific measurements and analyses performed.

Table D-1. PELs Used in OSHA Factor Calculations

Compound	PEL	
	mg/m^3	ppm
MEK	590	200
Ethyl Acetate	1400	400
n-Butanol	300	100
MIBK	410	100
Toluene	766	200
Butyl Acetate	710	150
MIAK	475	100
Ethyl Benzene	435	100
Xylenes	435	100
TMB	**125**	25
Hexyl Acetate	300	50
HDI	**0.035**	0.005
Zinc	5	N/A
Total Chromium	**0.5**	N/A
Hexavalent Chromium	**0.001**	N/A
Phosphoric Acid	1.0	N/A

Items indicated in **boldface** are NIOSH TWA values

D.8.1 Assessment of Overall Data Quality

Nearly all the objectives established for the Data Quality Indicators (DQI) were met for the Technology Demonstration Study. As indicated in the Quality Assurance Project Plan submitted for the Technology Demonstration Study in August 1995, the most critical measurements were the hazardous constituent concentrations measured in the recirculation ducts. These data are necessary to demonstrate that, under high throughput (worst case) conditions, the calculated OSHA factor in the recirculated stream does not exceed 0.5. The DQI objectives specified for the recirculation duct measurements were selected to ensure an adequate safety margin in this calculation.

Table D - 2. Objectives for Data Quality Indicators for Technology Demonstration Study.

Parameter	Measurement Method	Detection Level	Precision	Accuracy (%)	Completeness (%)
Flow Rate	EPA Method 2	NA	20	NA	90
	ACGIH Anemometer	10 fpm	20	±40	90
Metals	EPA Method 0060	0.2 μg/train 0.002 mg/m^3	NA	±30	90
	EPA Method 0061	0.1 μg/train 0.0001 mg/m^3	NA	±50	90
	NIOSH 7300	0.2 μg/filter 0.002 mg/m^3	40	±30	90
Organics	NIOSH 1300 (mod)	2 μg/tube 0.002 mg/m^3	40	±30	90
	EPA Method 25A	5 ppm	20	±20	90
Phosphoric Acid	NIOSH 7903	10 μg/tube 0.5 mg/m^3	40	±30	90
Isocyanates	OSHA 42	0.05 μg/filter 0.002 mg/m^3	40	±30	90
	EPA Draft Method	1μg/train	NA	±30	90
Paint Samples (Bulk)	% Volatile	NA	NA	±30	90
	Density	1 mg/cc	NA	±30	90
	Usage Rate	NA	NA	NA	NA

NA: Not Applicable

All of the recirculation duct measurement DQI objectives were met or exceeded with the exception of the accuracy level for hexamethylene diisocyanate (HDI). The results of a multi-level spike and recovery analysis for the EPA Draft Isocyanate sampling procedure indicated that a 125% recovery was achieved at the low concentration range (1.0 μg), but only 64% recovery was achieved at higher spikant concentrations (10 - 50 μg). Fortunately, the majority of the recirculation duct HDI concentrations were found at or below the detection level, thus the high spike/recovery factor is applicable to the field test results obtained. It may therefore be concluded that, despite the broad measurement accuracy range indicated by the spike/recovery results, the HDI levels measured in the recirculation ducts are perhaps overpredictive, which yields a more conservative (safe) OSHA Factor. In summary, all the QA/QC results obtained indicate that the recirculation/flow partition ventilation systems installed on the Barstow MCLB paint booths operate well within an acceptable margin of safety.

D.8.2 Assessment of Flow Rate Measurement Data Quality

Air flow rate measurements were performed in the booth exhaust and recirculation ducts according to EPA Method 2 procedures. Measurement precision was assessed through a relative standard deviation analysis of the 6 measurements taken at each booth; the RSD results range from 0.9% for Booth 3 to 1.5% for Booth 1. All of the EPA Method 2 measurement results were valid, thus the 90% completeness DQI objective was met.

Flow rate measurements at the booth exhaust faces were also taken according to ACGIH anemometer measurement procedures. Measurement precision was assessed through a relative standard deviation analysis of the 6 measurements taken at each booth; the RSD results range from 0.44% for Booth 3 to 0.5% for Booth 2. All of the anemometer measurement results were valid, thus the 90% completeness DQI objective was met.

Flow rate measurement accuracy was assessed by performing an RPD analysis that compares the anemometer results to the Method 2 data. The results indicate good comparability for Booth 2 (range is 3% to 6%) and Booth 3 (range is 10% to 12%), however the Booth 1 RPD results ranged from 33% to 38%. This higher range is attributed to the flow pattern established by the Booth 1 exhaust plenum configuration, which causes the exhaust air passing into the Booth 1 plenum to change directions rapidly, which naturally impacts the anemometer accuracy. Nonetheless, the Booth 1 RPD results meet the DQI accuracy objective of ± 40%.

D.8.3 Assessment of Metal Sampling Results

In general, the quality of the metal sampling data is quite high. Three different metal sampling procedures were employed for the Technology Demonstration Study: NIOSH 7300 samples were collected in the booths, and EPA Methods 0060 and 0061 were employed for the recirculation ducts. For all the methods, measurement accuracy was assessed through matrix spike and recovery analyses. All of the QA/QC results for the metal sampling activities are summarized in Table D - 3. Supplemental spike/recovery data and supporting documentation is provided at the end of this Appendix.

As indicated in the Technology Demonstration Study QAPjP, it was not possible to establish measurement precision for the EPA Method 0060 and 0061 results, however NIOSH 7300 precision was established by comparing side-by-side duplicate sample results. Moreover, the dynamic nature of paint booth operations often causes poor reproducibility in some of the side by side sample results. It was therefore deemed appropriate to characterize the overall sampling variability by pooling the individual RPD values obtained for each side-by-side measurement to derive an overall RPD value. To establish how well this average RPD value represents actual measurement RPDs, the relative standard deviation of the pooled RPD results was determined. As indicated in Table D - 3, the pooled RSD of NIOSH 7300 precision results fell slightly outside the ± 40% DQI objective.

Table D-3. QA/QC Summary Results for Metal Sampling Data

Method	DQI	Parameter	Results
NIOSH 7300	Measurement Precision	RPD Range RSD of Results	0% - 189% 57%
	Accuracy	Spike/Recovery Range Average	- 13% to 2% 1%
	Completeness	Samples collected Samples required Level achieved	310 324 96%
EPA 0060	Accuracy	Spike/Recovery Range Average	2% to 9% 6%
	Completeness	Samples collected Samples required Level achieved	13 14 93%
EPA 0061	Accuracy	Spike/Recovery Range Average	-3% to 3% -0.5%
	Completeness	Samples collected Samples required Level achieved	28 28 100%

There were some minor problems encountered with the EPA Method 0061 sampling procedure. It was originally intended that all the train fractions would be recovered and submitted to the laboratory for total chrome, zinc, and hexavalent chromium analysis. Unfortunately, the field technician failed to recover the filter used to separate the soluble (hexavalent) chromium from the insoluble metals such as zinc and trivalent chrome. Thus, it was not possible to obtain total chrome or zinc data for the sampling locations in which Method 0061 was used. However, the OSHA PELs for trivalent chrome and zinc are orders of magnitude greater than hexavalent chromium, therefore collection of trivalent chrome and zinc data was not at all critical to the success of the field test activities. Thus, this oversight does not impact the overall program results in any way. In addition, there was some background hexavalent chromium measured in the blank samples that were analyzed. The blank data were therefore used to correct the field test results.

D.8.4 Assessment of Speciated Organic Sampling Results

The quality of the NIOSH 1300 speciated sampling data is very high, as indicated in Table D - 4. For this method, measurement accuracy was assessed through matrix spike and recovery analyses. Supplemental spike/recovery data and supporting documentation is provided at the end of this Appendix. One compound, benzyl alcohol, showed relatively poor recovery. However inspection of the MSDSs for the coating employed during the Technology Demonstration Study indicates that benzyl alcohol was not present, thus the poor recover achieved does not have an impact on the program results. Moreover, because benzyl alcohol was not present, this compound is omitted from the accuracy range calculation results summarized in Table D - 4.

As indicated in the Technology Demonstration Study QAPjP, NIOSH 1300 precision was established by comparing side-by-side duplicate sample results. The dynamic nature of paint booth operations often causes poor reproducibility in some of the side by side sample results. It was therefore deemed appropriate to characterize the overall sampling variability by pooling the individual RPD values obtained for each side-by-side measurement to derive an overall RPD value. To establish how well this average RPD value represents actual measurement RPDs, the relative standard deviation of the pooled RPD results was determined. As indicated in Table D-4, the 18% pooled NIOSH 1300 RSD result falls within the ± 40% DQI objective.

D.8.5 Assessment of Isocyanate Sampling Results

Two different isocyanate sampling procedures were employed for the Technology Demonstration Study: OSHA 42 samples were collected in the booths, and the Draft EPA Isocyanate Method was employed in the recirculation ducts. For all the methods, measurement accuracy was assessed through matrix spike and recovery analyses. All of the QA/QC results for the isocyanate sampling activities are summarized in Table D-5. Supplemental spike/recovery data and supporting documentation is provided at the end of this Appendix.

Table D-4. QA/QC Summary Results for NIOSH 1300 Speciated Organic Data

DQI	Parameter	Results
Measurement Precision	RPD Range for Total Organics RSD of Results for Total Organics	1% - 46% 18%
Accuracy	Measured S/R Range (Over All Compounds) Average (Over All Compounds)	-49% to 3% -7%
Completeness	Samples collected Samples required Level achieved	369 380 97%

As indicated in the Technology Demonstration Study QAPjP, it was not possible to establish measurement precision for the Draft EPA Isocyanate Method results, however OSHA 42 precision was established by comparing side-by-side duplicate sample results. Moreover, the dynamic nature of paint booth operations often causes poor reproducibility in some of the side by side sample results. It was therefore deemed appropriate to characterize the overall sampling variability by pooling the individual RPD values obtained for each side-by-side measurement to derive an overall RPD value. To establish how well this average RPD value represents actual measurement RPDs, the relative standard deviation of the pooled RPD results was determined. As indicated in Table D-5 the 8% pooled OSHA 42 RSD result falls within the ± 40% DQI objective.

There were some problems encountered with the Draft EPA Isocyanate Method; the particulars of these difficulties are discussed in detail in Section 6 of the report, and are not repeated here. In addition, some minor deviations from the analytical protocol specified in the Draft EPA Isocyanate Method were made; the decision to deviate slightly from the procedure was made in the field with the concurrence from the EPA QAO representative present during the field audit. The analytical procedure adjustment was made during the sample preparation phase: instead of adding acetonitrile to the impinger solutions, evaporating them to dryness, then redissoving with acetonitrile (as specified in the method), the impinger solutions were merely concentrated prior to analysis.

Table D-5. QA/QC Summary Results for Isocyanate Sampling Data

Method	DQI	Parameter	Results
OSHA 42	Measurement Precision	RPD Range RSD of Results	7% - 27% 8%
	Accuracy	Spike/Recovery Range Average	-27% to 20% -12%
	Completeness	Samples collected Samples required Level achieved	38 37 103%
Draft EPA	Accuracy	Spike/Recovery Range Average	-54% to 25% -23%
	Completeness	Samples collected Samples required Level achieved	42 42 100%

D.8.6 Assessment of Phosphoric Acid Sampling Results

NIOSH 7903 sampling procedures were employed to measure phosphoric acid concentrations in the exhaust duct and in the vicinity of the painter. For this method, measurement accuracy was assessed through matrix spike and recovery analyses. It was originally intended that measurement precision would be assessed through an RPD analysis of side-by-side duplicate samples, however the analytical results indicated non-detect levels in all the duplicate samples, thus a measurement precision could not be assessed. It appears, however, that the DQI objective for this measurement was met. All of the other QA/QC results for the phosphoric acid sampling activities are summarized in Table D-6. Supplemental spike/recovery data and supporting documentation is provided at the end of this Appendix.

D.8.7 Assessment Paint Sample Data Quality

Coating and solvent samples were collected to perform a VOC mass balance for each test series. Table D -7 summarizes the precision, accuracy and completeness results for the coating sample percent volatile and density measurements performed. Accuracy was assessed through comparison with published information supplied by the manufacturer. As indicated in Table D-7, all the DQI Objectives for this measurement were met.

D.8.8 Assessment of EPA Method 25A Data Quality

The QA procedures (calibration and drift/span checks) implemented during the Method 25A sampling interval are summarized in Table D-8. Precision was assessed from zero gas and mid-level calibration gas drift checks. Accuracy was established by injecting multi-level calibration gases into the FID, and monitoring instrument response.

Table D-6. QA/QC Summary Results for Phosphoric Acid Sampling Data

DQI	Parameter	Results
Accuracy	Measured Spike/Recovery Range Average	-28% to 1% -18%
Completeness	Samples collected Samples required Level achieved	51 51 100%

Table D-7. QA/QC Summary Results for Paint Sample Density and % Volatile Data

Method	DQI	Parameter	Results
Density	Precision	RPD Range RSD of Results	0% - 2% 1%
	Accuracy	Accuracy Range Average	-3% - 0% -2%
	Completeness	Samples collected Samples required Level achieved	6 6 100%
% Volatile	Precision	RPD Range RSD of Results	0% - 10.5% 3%
	Accuracy	Accuracy Range Average	-27% to 0% -8%
	Completeness	Samples collected Samples required Level achieved	6 6 100%

There were some problems encountered during the EPA Method 25A sampling activities at Booth 1; these problems relate to the fact that on off-spec calibration gas was received and used. In total, 6 calibration gases were used for the Booth 1 tests (all of them Protocol 1 per the method), but the response recorded for one of the gases (850 ppm propane) disagreed significantly with the other 5. Unfortunately, this calibration cylinder was used to establish the span value, thus the response recorded for the other 5 calibration gases appear skewed. Fortunately, the data were corrected insofar as possible during the data reduction process. Moreover, this inconvenience should theoretically only impact the accuracy , and not the precision, drift or bias check results. A new calibration gas was obtained prior to initiating the Booth 2 and 3 sampling, thus only the Booth 1 results are affected. Moreover, the FID results are not considered critical to the success of this project, thus the difficulties encountered with the span gas do not impact project results or conclusions.

D.8.9 EPA Field Audit Results

During the technology Demonstration Study, the EPA Quality Assurance Office conducted a field audit. The EPA staff prepared several field spike samples that were submitted for analysis to the appropriate laboratory with the field samples that were collected. The analytical results that were obtained for the field spike samples as well as the standards that were

also submitted are summarized in Tables D-9 and D-10. Both uncorrected and corrected field spike sample results are reported in Table D-9. Please note:

1) The factors were employed for the field spike corrections are in Table D-9; these factors were obtained from the multi-level spike and recovery study results provided at the end of this Appendix. The appropriate recovery factor was identified based on the quantity measured in the spiked sample. For example, the results indicate that approximately 122 μg of MEK was spiked on the sample, thus the 81% average MEK recovery obtained for the 333 μg lab spike level was used for the correction factor.

2) For the NIOSH 1300 and NIOSH 7903 sampling activities, two sample tubes were placed in series to ensure 100% collection of the sampled constituents. The laboratory was instructed to analyze all front tubes, and further instructed to analyze the back tubes only if the front tube results indicated the possibility of breakthrough. To distinguish front tubes from back tubes, all the front tubes were denoted with the suffix "a", and back tubes were denoted with the suffix "b". Unfortunately, the EPA field spike samples were submitted with identification numbers that included the "a" and "b" suffixes, thus the laboratory only analyzed the field spike samples denote with an "a". This oversight was not recognized until nearly two months after the samples were submitted. Although the samples were then analyzed immediately, it is likely that the results obtained from these two field spike samples are skewed. EPA may therefore want to consider disregarding the results reported for the samples identified as B2PH4P1b and B2O4P1b.

3) The analytical laboratory did not measure the volume of the hexavalent chrome standard prior to analysis, thus the total mass found in the sample could not be reported. However, the initial volume was estimated at 10 ml.

4) The zinc standard was submitted with the hexavalent chrome standard to the laboratory performing the Booth 2 and 3 Method 0061 analyses. This is because zinc occurs only in combination with the hexavalent chrome found in the wash primer (which is used only in Booths 2 and 3), and not with the trivalent chrome found in the topcoat material (which is the only material applied in Booth 1). However, due to field sampling crew errors, the Method 0061 train fractions collected from the Booth 2 and 3 sampling efforts were not sufficiently recovered to allow analysis for total chrome and zinc, thus the Method 0061 analyses performed on the field samples did not include total chrome or zinc.

Table D-8. QA/QC Summary Results for EPA Method 25A Data

Location	Data Quality Indicator	Parameter	Result
Booth 1	Precision	Drift range Drift average	0.3% - 4.2% 1.6%
	Accuracy	Linearity range Linearity average	0.3% - 7.8% 2.7%
	Completeness	Measurement collected Measurements required Level achieved	18 18 100%
Booth 2	Precision	Drift range Drift average	0.0% - 0.9% 0.4%
	Accuracy	Linearity range Linearity average	0.0% - 4.2% 1.8%
	Completeness	Measurement collected Measurements required Level achieved	18 18 100%
Booth 3	Precision	Drift range Drift average	0.0% - 1.2% 0.2%
	Accuracy	Linearity range Linearity average	2.7% - 8.9% 4.9%
	Completeness	Measurement collected Measurements required Level achieved	18 18 100%

Table D-9. Summary of EPA Field Spike and Analysis Results

Sampling Procedure	Sample #	Target Analyte	Uncorrected (μg)	C. Factor	Corrected (μg)
EPA Method 0061	B2C10NR	Cr^{+6}	0.561	103%	0.545
	B2C10SR	Cr^{+6}	0.369	103%	0.358
EPA Method 0060	B1M10NR	Total Chrome	1.75	102%	1.72
	B1M10SR	Total Chrome	1.96	102%	1.92
NIOSH 7300	B2M4P1	Chrome Zinc	13.1 24.8	96% 97%	13.6 25.6
	B2M4P2	Chrome Zinc	9.14 2.41	96% 97%	9.52 2.49
OSHA 42	B2I4P1	HDI	< 0.06	120%	0.05
	B2I4P2	HDI	0.19	120%	0.16
EPA Draft Method	B2I10NR	HDI	16.2	64%	25.3
	B2I10SR	HDI	14.9	64%	23.3
NIOSH 7903	B2PH4P1a	Phosphoric Acid	9.87	73%	13.5
	B2PH4P1b[1]	Phosphoric Acid	145	72%	201
NIOSH 1300	B2O4P1a	MEK Ethyl acetate n-Butanol MIBK Toluene Butyl Acetate MIAK PGMEA Ethyl benzene Xylene TMB Hexyl Acetate Benzyl Alcohol	122 183 120 < 7.5 173 192 165 < 7.5 203 144 165 173 <7.5	81% 100% 41% 96% 104% 103% 92% 82% 99% 89% 100% 97% 14%	151 183 293 ND 166 186 179 ND 205 162 165 178 ND
	B2O4P1b[1]	MEK Ethyl acetate n-Butanol MIBK Toluene Butyl Acetate MIAK PGMEA Ethyl benzene Xylene TMB Hexyl Acetate Benzyl Alcohol	64.6 195 not reported < 7.5 175 102 111 < 7.5 215 150 170 183 < 7.5	81% 100% 41% 96% 104% 103% 92% 82% 99% 89% 100% 97% 14%	79.8 195 no report ND 168 99 121 ND 217 169 170 189 ND

[1] These tubes were not analyzed with the original group of samples. See comments in text.

Table D-10. Analytical Results of EPA Submitted Standards

Method	Analyte	Analytical Results
EPA 0061	Hexavalent Chrome [1]	9.6 E+5 ug/L
EPA 0060	Total Chrome Zinc [2]	8.6 mg Not analyzed
EPA Draft Isocyanate	HDI	No results
NIOSH 7903	Phosphoric Acid	28.4 mg
NIOSH 1300	MEK Ethyl acetate n-Butanol MIBK Toluene Butyl Acetate MIAK PGMEA Ethyl benzene Xylene TMB Hexyl Acetate Benzyl Alcohol	10.31 mg 11.68 mg 11.62 mg < 7.5 μg 11.31 mg 11.94 mg < 7.5 μg 18.43 mg 12.62 mg 9.39 mg 11.2 mg 10.73 mg < 7.5 μg
EPA Method 25A	Propane	97 ppm

[1] See comment 3 in text

[2] See comment 4 in text

BARSTOW MCLB

EXHAUST DUCT FLOWRATE SUMMARY

METHOD 2

Booth	Test #	North (or West) Duct			South (or East) Duct			Duct Flowrates (dscfm)		
		Horizontal Traverse		Vertical	Horizontal Traverse		Vertical			
		Iso Train	Met/CR6	Traverse	Iso Train	Met/CR6	Traverse	North/West	South /East	Exhaust
1	1	6812	7264		6579	6496		7264	6579	20113
	2	6997	6890	6638	6749	6926	6589	6818	6758	20018
	3	6824	6825		6559	6756		6825	6756	19509
	4	6829	6853	6813	6767	6772	6669	6833	6721	18909
	5	6664	6672	6590	6431	6473	6425	6631	6449	19732
	6	6827	6831	6588	6296	6787	6655	6710	6721	19940
2	1	3647	3523	3409	3197	3065	3295	3528	3246	19107
	2	3728	3678	3296	3284	3369	3388	3512	3379	19404
	3	3614	3465	3633	3208	3171	3464	3624	3336	18651
	4	3570	3605	3709	3251	3247	3396	3657	3324	19319
	5	3669	3489	3515	3299	3197	3307	3592	3303	19474
	6	3885	3914	3884	3647	3331	3591	3899	3619	18769
3	1	3766	3457	3533	3180	3115	3538	3650	3359	12774
	2	3597	3422	3444	3203	3241	3601	3521	3421	12623
	3	3697	3475		3303	3325		3697	3325	12791
	4	3680	3471		2997	3190		3680	3190	12689
	5	3744	3394	3572	3136	3258	3465	3658	3362	12824
	6	3601	3360	3666	3223	3116	3448	3634	3336	12479

Note: Recirc flowrates are calculated using highest of either isocyanate or metals/chrome traverse data.

D-1

D.

FLOW RATE MEASUREMENT RESULTS

BOOTH 1 DATA

Surface area = 200 square feet

Test 1		Test 2		Test 3		Test 4		Test 5		Test 6	
120	130	120	135	130	135	125	125	130	130	130	130
130	125	130	130	125	130	120	125	130	130	130	135
125	120	125	130	135	130	125	120	130	130	125	130
130	120	135	130	125	130	120	120	130	130	130	130
125	130	125	130	130	130	125	120	120	120	125	125
130	120	135	125	120	125	120	120	130	125	125	125
120	120	125	120	135	120	125	120	125	130	125	130
130	125	130	125	125	125	120	120	120	125	125	125
125	120	125	120	130	120	125	120	125	120	130	125
130	120	130	120	125	125	125	120	125	125	125	125
120	120	125	120	130	115	125	120	110	115	115	110
120	120	130	120	125	120	120	120	125	120	125	115
110	110	100	115	120	120	120	120	105	110	105	110
120	110	110	110	110	110	100	100	100	110	105	100
105	85	95	95	105	110	105	115	110	105	105	110
115	100	100	100	100	100	110	100	100	95	105	95
115	116	117	117	116	116	116	118	113	120	114	120
115		**117**		**116**		**117**		**116**		**117**	

Average

Anemometer

D.7

BOOTH 2 DATA

surface area = 233 sq ft

Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
90	105	105	110	105	105
90	100	105	110	105	105
105	100	100	105	105	100
100	100	100	105	105	100
100	105	105	105	110	105
105	100	105	100	100	100
110	105	110	105	105	105
105	105	110	110	110	110
105	110	110	110	110	105
110	110	110	110	110	110
110	100	100	100	105	105
110	105	110	100	105	100
110	105	105	105	105	105
110	110	110	105	105	105
110	105	105	110	105	105
100	100	95	100	105	105
105	105	105	105	105	105
105	105	105	105	110	105
110	105	105	105	115	105
110	110	105	100	105	100
110	100	110	105	110	105
110	105	105	105	105	110
110	110	110	105	105	105
110	110	110	105	105	100
110	110	110	110	105	105
90	100	110	100	100	100
95	105	100	105	110	110
110	110	105	110	110	110
110	115	110	110	115	115
105	115	115	110	110	115
100	105	115	100	105	100
105	110	100	110	110	115
110	110	110	115	110	115
110	110	110	115	115	120
110	115	115	115	115	110
106	**106**	**107**	**106**	**107**	**106**

Average

Anemometer

BOOTH 3 DATA

D.7

surface area = 167 sq ft

	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
	105	110	110	110	105	110
	105	115	110	115	115	115
	105	100	110	110	115	110
	105	105	110	110	110	105
	105	105	105	105	110	110
	105	105	105	105	105	105
	105	105	105	105	105	105
	105	105	100	105	105	100
	105	100	110	100	100	100
	110	105	110	110	110	105
	105	105	105	105	105	105
	105	105	105	105	105	105
	105	110	100	105	105	105
	100	105	100	100	100	100
	100	105	105	100	100	105
	105	105	105	105	105	105
	105	105	100	105	110	110
	105	105	100	105	110	100
	110	100	110	100	100	100
	110	105	110	105	105	105
	110	105	110	105	105	105
	105	105	110	105	105	105
	105	105	110	105	110	105
	105	105	105	105	105	105
	105	105	105	110	105	100
Average	**105**	**105**	**106**	**106**	**106**	**105**

Anemometer

Test#	Time	Avg Concentration (ppm C3)					
		Raw			Corrected		
		N (E) Recirc	S (W) Recirc	Exhaust	N (W) Recirc	S (E) Recirc	Exhaust
B1 R1		92	142	195	122	181	209
R2		71	162	160	92	195	182
R3		66	132	186	96	170	203
R4		96	137	156	123	166	163
R5		78	143	165	117	184	185
R6		86	126	142	127	165	164
B2 R1		59	33	94	58	33	93
R2		35	37	80	35	38	79
R3		58	47	102	57	47	101
R4		80	42	97	81	41	100
R5		94	52	96	91	52	97
R6		93	45	100	94	47	105
B3 R1		6	2	50	7	3	54
R2		14	11	53	15	10	54
R3		16	12	66	17	13	67
R4		13	11	52	14	12	54
R5		19	16	81	20	16	84
R6		12	13	68	13	14	67

BOOTH 1
BOOTH 2
BOOTH 3

PAINTER DATA

TEST:
DATE:
METHODS:

BARSTOW MCLB
BOOTH 1 PAINTERS
ACUREX PROJECT 8628

D E Initials: sl
Q A Initials: wdu
Print Date: 04/26/96

	ACUREX Sample #	MEK (ug)	Ethyl Acetate (ug)	n-Butyl alcohol (ug)	MIBK (ug)	Toluene (ug)	Butyl Acetate (ug)	MIAK (ug)	PGME acetate (ug)	Ethyl benzene (ug)	Xylenes (ug)	Trimethyl benzenes (ug)	Hexyl acetate (ug)	Benzyl alcohol (ug)	Total Organics (ug)
	B1O1P1BAS	3340	14	ND	7083	7539	3952	14418	ND	2775	16257	677	860	ND	56915
E	B1O1P1BASD	4841	19.8	ND	7076	9015	5643	13675	ND	4457	20591	943	1142	ND	66803
	B1O1P2BAS	2066	18.5	ND	3274	3989	2032	7274	ND	1761	8544	375	442	ND	29776
	B1O2P1BAS	2198	12.6	ND	4316	4474	2159	7534	45.2	1847	9708	445	522	ND	33261
	B1O2P2BAS	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	0
	B1O3P1BAS	3831	14.6	ND	8946	9376	2984	6019	33.8	2711	18101	493	639	ND	53148
	B1O3P2BAS	2050	12.3	ND	4188	4368	1745	3720	23.7	1597	8985	342	452	ND	27483
	B1O1P1	996	12.9	ND	2503	2331	1013	117	ND	1046	5396	212	316	ND	13943
E	B1O1P1D	2771	12.5	ND	6927	6370	2800	514	ND	2893	15779	642	924	ND	39633
E	B1O1P2	3653	13.3	ND	9195	8722	3512	1293	ND	3651	19434	709	907	ND	51089
E	B1O1P2D	3756	11.5	ND	9490	9081	3670	1402	ND	3907	21125	801	1052	ND	54296
E	B1O2P1	2089	15.5	ND	10340	9278	3223	221	ND	3996	21044	745	537	ND	51489
E	B1O2P1D	2235	15.5	ND	10080	9550	3227	209	ND	3722	20290	746	535	ND	50610
	B1O2P2	2729	16.5	ND	15673	15819	6304	2129	ND	6125	33601	813	683	ND	83893
	B1O2P2D	2979	15.5	ND	13053	12794	4529	554	ND	5091	28016	893	741	ND	68666
	B1O3P1	3812	19.9	8.47	12714	15645	5338	561	ND	6345	34626	1175	1001	ND	81245
	B1O3P2	3331	15.4	ND	12508	12796	4410	678	ND	5172	27858	900	741	ND	68409
	B2O1P1BAS	212	31.8	373	74.6	118.9	28.3	ND	ND	30.1	156	68.3	9.9	ND	1103
	B2O1P2BAS	282	11.6	123	649	629	212.0	ND	ND	272	1363	80.0	50.7	ND	3672
	B2O2P1BAS	242	ND	387	143	169	75.0	ND	ND	70.4	378	86.3	43.9	ND	1595
	B2O2P2BAS	320	ND	8.3	505	532	211	ND	ND	211	1059	75.9	80.1	ND	3002
	B2O3P1BAS	309	17.1	273	94.2	103	55.7	ND	ND	62.8	354	88.2	40.5	ND	1398
	B2O3P1BASD	249	22.9	233	77.6	84.5	45.8	ND	ND	50.7	284	71.5	33.3	ND	1152
	B2O3P2BAS	898	30.1	39.2	203	235	79.3	ND	ND	80.8	398	25.3	26.2	ND	2015
	B2O1P1	440	ND	504	183	297	164	ND	ND	99.3	539	173	166	ND	2565
7	B2O1P1D	235	10.4	95.8	8.0	16.5	ND	ND	ND	ND	12.3	ND	ND	ND	378
	B2O1P2	2374	48	251	1399	2068	1075	9.2	ND	620	3434	397	589	ND	12264
	B2O2P1	230	ND	447	182	356	141	ND	ND	103	559	164	119	ND	2301
	B2O2P2	723	ND	122	459	624	286	ND	ND	200	1006	113	137	ND	3670
	B2O2P2D	1338	ND	163	944	1239	580	ND	ND	408	2059	217	299	ND	7247
	B2O3P1	241	12.5	394	163	215	467	ND	ND	56.6	396	127	114	ND	2186
	B2O3P2	1673	9.4	181	1146	1465	2586	ND	ND	294	1892	251	355	ND	9852
	B3O1P1BAS	1146	ND	195	297	427	234	ND	ND	132	664	96.3	135	ND	3326
	B3O2P1BAS	3511	10.7	249	393	537	295	ND	ND	174	866	84.0	159	ND	6279
	B3O2P1BASB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
	B3O3P1BAS	3199	31.5	221	262	315	128	ND	ND	113	571	77.4	69.2	ND	4987
	B3O1P1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
	B3O1P1D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
	B3O2P1	2294	8.9	216	327	606	176	ND	ND	155	793	103	95.5	ND	4774
	B3O3P1	5949	17.2	325	241	486	142	ND	ND	114	568	79.0	57.2	ND	7978

* Pump off at end of test
E = Estimated analytical values

MDL = 7.50 ug
TMB MDL = 15.0 ug

2/2 D3

Booth 1
Booth 2
Booth 3

Painter DATA

D.

1/2

TEST: ORGANICS
DATE: NA
METHODS: NIOSH 1300

BARSTOW MCLB
BOOTH 1 - PAINTERS
ACUREX PROJECT 8628

D E Initials: wdu
Q A Initials: wdu
Print Date: 04/25/96

	ACUREX Sample #	TEMP (deg F)	BAROM PRESS (in Hg)	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP
	B1O1P1BAS	65	28.3	20	62	1022	865	55.6
E	B1O1P1BASD	65	28.3	34	62	1010	952	57.9
	B1O1P2BAS	65	28.3	39	62	976	929	56.2
	B1O2P1BAS	68	28.3	20	54	981	1058	52.1
	B1O2P2BAS	68	28.3	39	54	1052	1077	54.4
	B1O3P1BAS	63	28.3	20	37	1058	1040	37.1
	B1O3P2BAS	63	28.3	39	37	1049	997	36.1
	B1O1P1	72	28.0	34	63	940	1024	57.5
E	B1O1P1D	72	28.0	40	63	1000	1024	59.2
E	B1O1P2	72	28.0	31	63	1013	920	56.6
E	B1O1P2D	72	28.0	28	63	1087	1050	62.5
E	B1O2P1	63	28.0	34	71	1013	1003	67.6
E	B1O2P1D	63	28.0	40	71	1010	997	67.3
	B1O2P2	63	28.0	31	71	999	1009	67.3
	B1O2P2D	63	28.0	28	71	1015	1000	67.6
	B1O3P1	67	28.0	34	61	1003	1029	58.1
	B1O3P2	67	28.0	31	61	1009	1026	58.2
	B2O1P1BAS	87	28.0	35	56	1003	982	50.2
	B2O1P2BAS	87	28.0	31	56	998	1001	50.6
	B2O2P1BAS	87	28.0	35	52	996	984	46.5
	B2O2P2BAS	87	28.0	31	52	1001	1002	47.0
	B2O3P1BAS	70	28.1	35	60	1001	997	56.1
	B2O3P1BASD	70	28.1	28	60	1006	1062	58.0
	B2O3P2BAS	70	28.1	31	60	1016	1023	57.2
	B2O1P1	73	28.2	35	70	1014	1027	66.7
?	B2O1P1D	73	28.2	28	70	1011	1012	66.1
	B2O1P2	73	28.2	31	70	1007	1001	65.6
	B2O2P1	78	28.2	35	60	1027	1002	56.3
	B2O2P2	78	28.2	31	60	1001	1001	55.6
	B2O2P2D	78	28.2	28	60	1012	1001	55.9
	B2O3P1	75	28.2	35	61	1030	1036	58.6
	B2O3P2	75	28.2	31	61	999	1013	57.1
	B3O1P1BAS	75	28.2	29	60	1018	1018	56.8
	B3O2P1BAS	78	28.0	12	60	999	972	54.3
	B3O2P1BASB	78	28.0	NA	NA	NA	NA	NA
	B3O3P1BAS	77	28.0	12	60	972	988	54.1
	B3O1P1	76	28.2	45	62	1000	1148	61.8
	B3O1P1D	76	28.2	11	62	1035	976	57.9
	B3O2P1	71	28.1	3	60	1000	999	56.0
	B3O3P1	73	28.1	3	60	999	995	55.7

* Pump off at end of test
E = Estimated analytical values

BOOTH 1 DUCT DATA - ORGANICS 1/2 D.3

TEST: ORGANICS
DATE: NA
METHODS: NIOSH 1300

~~BARSTOW MCLB~~
BOOTH 1 - DUCTS
~~ACUREX PROJECT~~ 8628

D E Initials: wdu
Q A Initials: wdu
Print Date: 04/16/96

	ACUREX Sample #	TEMP (deg F)	BAROM PRESS (in Hg)	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP
	B1 O 1 RN	68	28.2	36	57	1011	968	53.2
	B1 O 1 RS	68	28.2	35	57	1042	943	53.3
	B1 O 1 E	68	28.2	39	57	1050	1020	55.6
	B1 O 2 RN	68	28.2	36	70	968	1027	65.8
	B1 O 2 RS	68	28.2	35	70	1005	1053	67.9
*	B1 O 2 E	68	28.2	* 39	70	1020	1052	68.4
	B1 O 3 RN	64	28.0	36	63	1013	1020	60.4
	B1 O 3 RS	64	28.0	35	63	1030	1040	61.5
	B1 O 3 E	64	28.0	39	63	1010	1015	60.1
	B1 O 3 ED	64	28.0	20	63	1018	1025	60.7
	B1 O 4 RN	72	28.0	36	63	1013	1023	59.6
	B1 O 4 RS	72	28.0	35	63	1030	1008	59.6
	B1 O 4 RSD	72	28.0	20	63	1018	951	57.6
	B1 O 4 E	72	28.0	39	63	1010	993	58.6
	B1 O 5 RN	63	28.0	36	71	997	1003	67.1
	B1 O 5 RNB	63	28.0	NA	71	NA	NA	NA
	B1 O 5 RS	63	28.0	35	71	1000	982	66.5
	B1 O 5 E	63	28.0	39	71	980	952	64.8
	B1 O 6 RN	67	28.0	36	61	1003	1017	57.8
	B1 O 6 RS	67	28.0	35	61	982	1014	57.1
	B1 O 6 E	67	28.0	39	61	952	995	55.7

* Pump off at end of test

BOOTH 1

DUCT DATA - ORGANICS

TEST:
DATE:
METHODS:

BARSTOW MCLB
DUCT - TESTS
ACUREX PROJECT 8628

D E Initials: al
Q A Initials: wdu
Print Date: 04/26/96

ACUREX Sample #	MEK (ug)	Ethyl Acetate (ug)	n-Butyl alcohol (ug)	MIBK (ug)	Toluene (ug)	Butyl Acetate (ug)	iso-amyl Keytone (ug)	PGME acetate (ug)	Ethyl benzene (ug)	Xylenes (ug)	Trimethyl benzenes (ug)	Hexyl acetate (ug)	Benzyl alcohol (ug)	Total Organics (ug)
B1 O 1 RN	952	13.6	ND	1753	2183	1070	1182	ND	1025	5360	226.8	346	ND	14111
B1 O 1 RS	1485	15.8	ND	2645	3271	1609	1867	ND	1532	8014	335.1	509	ND	21283
B1 O 1 E	1036	13	ND	1990	2458	1244	1376	ND	1204	6379	285.9	441	ND	16427
B1 O 2 RN	862	13.6	ND	1502	1897	915	1057	ND	871	4528	191.5	300	ND	12137
B1 O 2 RS	1863	17.7	ND	3411	4280	2122	2568	ND	2021	10761	482.3	752	ND	28278
B1 O 2 E	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	0
B1 O 3 RN	946	19.3	ND	1860	2315	1030	289	ND	1037	5435	212	311	ND	13454
B1 O 3 RS	1262	14.4	ND	2470	3057	1381	14.2	ND	1408	7472	386	456	ND	17921
B1 O 3 E	1564	17.2	ND	3143	3877	1753	498	ND	1787	9505	379.4	561	ND	23085
B1 O 3 ED	1292	15.2	ND	2466	3016	1360	369	ND	1380	7316	295.6	434	ND	17944
B1 O 4 RN	785	11.7	ND	1688	1649	687	176	ND	723	3786	172.5	236	ND	9914
B1 O 4 RS	1048	14.1	ND	2816	2630	1173	300	ND	1233	6550	281.6	394	ND	16440
B1 O 4 RSD	807	11.2	ND	2024	1862	832	208	ND	868	4594	204	286	ND	11696
B1 O 4 E	778	8.81	ND	2385	2218	1025	268	ND	1106	6003	273.3	373	ND	14438
B1 O 5 RN	533	12.4	ND	2208	1939	765	88.7	ND	934	4874	195.7	163	ND	11713
B1 O 5 RNB	ND	12.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13
B1 O 5 RS	730	12.2	ND	3179	2772	1103	141	ND	1352	7158	292.8	247	ND	16987
B1 O 5 E	756	14.1	ND	3549	2850	1139	144	ND	1382	7300	294.5	244	ND	17673
B1 O 6 RN	102	15	ND	416	501	197	24.2	ND	245	1298	54.3	46.4	ND	2899
B1 O 6 RS	609	14	ND	2245	2660	1063	141	ND	1297	6873	277.9	255	ND	15435
B1 O 6 E	612	14.4	ND	2321	2742	1094	140	ND	1322	7009	281.6	241	ND	15777

* Pump off at end of test

MDL = 7.50 ug TMB MDL = 15.0 ug

2/2 4.0

DUCT DATA

1/2 P.3

TEST: ORGANICS
DATE: NA
METHODS: NIOSH 1300

BARSTOW MCLB
BOOTH 2 - DUCTS
ACUREX PROJECT 8628

D E Initials: wdu
Q A Initials: wdu
Print Date: 04/26/96

ACUREX Sample #	TEMP (deg F)	BAROM PRESS (in Hg)	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP
B2 O 1 RN	73	28.2	45	70	1008	901	62.4
B2 O 1 RS	73	28.2	29	70	1010	1001	65.7
B2 O 1 E	73	28.2	36	70	1036	743	58.1
B2 O 1 ED	73	28.2	34	70	1029	1046	67.8
B2 O 2 RN	78	28.2	40	60	1006	1000	55.7
B2 O 2 RNB	78	28.2	NA	NA	NA	NA	NA
B2 O 2 RS	78	28.2	29	60	1001	1006	55.7
B2 O 2 E	78	28.2	36	60	1003	981	55.1
B2 O 3 RN	75	28.2	40	61	1000	1042	57.9
B2 O 3 RS	75	28.2	29	61	1003	1000	56.8
B2 O 3 RSB	75	28.2	NA	61	NA	NA	NA
B2 O 3 E	75	28.2	36	61	1005	1008	57.1
B2 O 4 RN	78	28.2	40	61	1000	1016	56.9
B2 O 4 RS	78	28.2	29	61	1013	1000	56.8
B2 O 4 E	78	28.2	36	61	1011	1003	56.8
B2 O 5 RN	74	28.0	40	61	1000	1006	NA
B2 O 5 RS	74	28.0	29	61	1001	1001	56.5
B2 O 5 E	74	28.0	36	61	1005	1022	57.2
B2 O 6 RN	74	28.0	40	60	1006	1012	56.0
B2 O 6 RS	74	28.0	29	60	1001	1019	56.1
B2 O 6 E	74	28.0	36	60	1022	1010	56.4

* Pump off at end of test

DUCT DATA

TEST:
DATE:
METHODS:

BARSTOW MCLB
BOOTH 2 - DUCTS
ACUREX PROJECT 8628

D E Initials: al
Q A Initials: wdu
Print Date: 04/26/96

ACUREX Sample #	MEK (ug)	Ethyl Acetate (ug)	n-Butyl alcohol (ug)	MIBK (ug)	Toluene (ug)	Butyl Acetate (ug)	MIAK (ug)	PGME acetate (ug)	Ethyl benzene (ug)	Xylenes (ug)	Trimethyl benzenes (ug)	Hexyl acetate (ug)	Benzyl alcohol (ug)	Total Organics (ug)
B2 O 1 RN	946	ND	319	720	1027	625	ND	ND	367	1897	301	437	ND	6639
B2 O 1 RS	756	ND	333	532	788	435	ND	ND	262	1360	232.3	321	ND	5019
B2 O 1 E	1507	7.8	820	1383	1987	1197	8.5	ND	738	3890	718	968	ND	13224
B2 O 1 ED	2114	12.7	967	1354	1862	1127	8.2	ND	678	3563	657	890	ND	13233
B2 O 2 RN	470	ND	184	388	522	267.0	ND	ND	195	1023	155	179	ND	3383
B2 O 2 RNB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
B2 O 2 RS	445	ND	334	449	791	309	ND	ND	225	1170	193.3	194	ND	4110
B2 O 2 E	861	ND	484	779	1018	520	ND	ND	378	1967	322	348	ND	6677
B2 O 3 RN	784	ND	305	648	799	1732	ND	ND	202	1373	236.4	322	ND	6401
B2 O 3 RS	730	27.5	423	834	1068	2223	ND	ND	260	1736	292	365	ND	7959
B2 O 3 RSB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
B2 O 3 E	1343	19.4	664	1131	1435	3020	ND	ND	352	2377	475	655	ND	11471
B2 O 4 RN	1067	21.5	656	869	1078	2203	ND	ND	256	1716	307	341	ND	8515
B2 O 4 RS	529	ND	442	450	670	1135	ND	ND	134	896	174.8	183	ND	4614
B2 O 4 E	1241	24.6	976	1005	1269	2540	ND	ND	296	2003	444	449	ND	10248
B2 O 5 RN	1449	10.0	429	824	1233	803	ND	ND	408	2090	343	467	ND	8056
B2 O 5 RS	984	12.7	340	490	802	452	ND	ND	231	1167	197.2	247	ND	4923
B2 O 5 E	1448	10.5	667	809	1224	802	ND	ND	410	2137	433	568	ND	8509
B2 O 6 RN	1521	19.2	1049	992	1778	1083	ND	ND	518	2652	494	672	ND	10778
B2 O 6 RS	903	17.8	380	463	873	488	ND	ND	232	1178	207.3	294	ND	5036
B2 O 6 E	1704	31.2	938	851	1421	909	ND	ND	428	2205	463	637	ND	9587

* Pump off at end of test

MDL = 7.50 ug TMB MDL = 15.0 ug

205

Duct Data 1/2 D3

TEST: ORGANICS
DATE: NA
METHODS: NIOSH 1300

~~BARSTOW MCLB~~
BOOTH 3 - DUCTS
ACUREX PROJECT 8628

D E Initials: wdu
Q A Initials: wdu
Print Date: 04/24/96

ACUREX Sample #	TEMP (deg F)	BAROM PRESS (in Hg)	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP
B3 O 1 RE	71	28.1	29	75	1019	1027	71.7
B3 O 1 RW	71	28.1	31	75	1003	940	68.0
B3 O 1 E	71	28.1	36	75	1010	1014	70.9
B3 O 1 EB	71	28.1	NA	NA	NA	NA	NA
B3 O 2 RE	77	28.1	29	67	1027	1006	62.9
B3 O 2 RED	77	28.1	11	67	1010	974	61.4
B3 O 2 RW	77	28.1	31	67	984	1033	62.4
B3 O 2 E	77	28.1	36	67	1014	1043	63.6
B3 O 3 RE	69	28.2	29	64	1031	1035	62.2
B3 O 3 RW	69	28.2	31	64	995	1036	61.1
B3 O 3 RWD	69	28.2	11	64	1013	1037	61.7
B3 O 3 E	69	28.2	36	64	1025	1036	62.0
B3 O 4 RE	76	28.2	29	62	1035	1018	59.1
B3 O 4 RW	76	28.2	31	62	1036	1001	58.6
B3 O 4 E	76	28.2	36	62	1036	1039	59.7
B3 O 5 RE	71	28.1	18	60	1000	1010	56.3
B3 O 5 RW	71	28.1	37	60	1008	1003	56.3
B3 O 5 E	71	28.1	20	60	1012	1026	57.1
B3 O 6 RE	73	28.1	18	60	1010	996	56.0
B3 O 6 RW	73	28.1	37	60	1003	989	55.6
B3 O 6 E	73	28.1	20	60	1026	1052	58.0

* Pump off at end of test

Duct Data

TEST:
DATE:
METHODS:

BARSTOW MCLB
BOOTH 3 - DUCTS
ACUREX PROJECT 8628

D E Initials: al, lcy
Q A Initials: wdu, lcy
Print Date: 04/26/96

ACUREX Sample #	MEK (ug)	Ethyl Acetate (ug)	n-Butyl alcohol (ug)	MIBK (ug)	Toluene (ug)	Butyl Acetate (ug)	MIAK (ug)	PGME acetate (ug)	Ethyl benzene (ug)	Xylenes (ug)	Trimethyl benzenes (ug)	Hexyl acetate (ug)	Benzyl alcohol (ug)	Total Organics (ug)
B3 O 1 RE	171	11.1	59.5	40.7	81.2	41.5	ND	ND	19.7	103	49.4	ND	ND	577
B3 O 1 RW	143	15.5	40.8	32.4	106	34.3	ND	ND	15.5	81.2	27.8	39.3	ND	536
B3 O 1 E	1002	22.6	886	454	716	425	ND	ND	232	1218	291	356	ND	5603
B3 O 1 EB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
B3 O 2 RE	164	ND	141	69	156	65.1	ND	ND	35.6	186	40.1	53.4	ND	910
B3 O 2 RED	172	16.5	141	66.4	149	62.4	ND	ND	33.7	177	24	ND	ND	842
B3 O 2 RW	144	15.3	77.3	59.1	215	55.5	ND	ND	30	157	33.4	45	ND	832
B3 O 2 E	846	ND	593	461	735	430	ND	ND	238	1252	372	ND	ND	4927
B3 O 3 RE	244	15.6	51.7	100	277	88.1	ND	ND	50.6	270	42.8	72.9	ND	1213
B3 O 3 RW	148	15.2	40	63.9	452	57.9	ND	ND	33.4	183	30.5	50.7	ND	1075
B3 O 3 RWD	143	16.8	38.2	58	423	52.2	ND	ND	29.8	165	27.8	45.9	ND	1000
B3 O 3 E	1071	18.3	610	523	950	463	ND	ND	264	1389	118.6	360	ND	5767
B3 O 4 RE	192	ND	56.4	92.5	310	84.8	ND	ND	48.2	255	45.7	76	ND	1161
B3 O 4 RW	17.5	13.6	23	ND	164	ND	ND	ND	ND	ND	ND	ND	ND	218
B3 O 4 E	675	17	651	336	673	298	ND	ND	172	912	116.2	262	ND	4112
B3 O 5 RE	369	ND	87.4	110	343	68.3	ND	ND	69.2	375	33	58.2	ND	1513
B3 O 5 RW	313	18.8	49.4	73.6	483	45.6	ND	ND	50.7	275	25.6	40.8	ND	1376
B3 O 5 E	1749	14.4	552	716	1069	443	ND	ND	364	1900	166.4	278	ND	7252
B3 O 6 RE	389	11.2	44.7	48.5	175	35.3	ND	ND	37.3	190	18.2	19.2	ND	968
B3 O 6 RW	313	18.8	49.4	73.6	483	45.6	ND	ND	50.7	175	25.6	40.8	ND	1276
B3 O 6 E	961	9	207	228	329	150	ND	ND	121	636	66.4	89.9	ND	2797

* Pump off at end of test

MDL = 7.50 ug TMB MDL = 15.0 ug

2/2 D3

EXHAUST FACE DATA

1/2 D.2

TEST: ORGANICS # 1
DATE: 12/01/95 PM
METHODS NIOSH 1300

BARSTOW MCLB
BOOTH 1 - TESTS
ACUREX PROJECT 8628

D E Initials: al
Q A Initials: wdu
Print Date: 04/25/96

BOOTH Temperature: 72 F P Barr: 27.98 in Hg

GRID LOC		ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP
1		B1 O 1 L1	17	63	1020	1017	59.6
2		B1 O 1 L2	9	63	1000	1017	59.0
3		B1 O 1 L3	23	63	1014	1009	59.1
4		B1 O 1 L4	3	63	1044	850	55.4
5		B1 O 1 L5	19	63	955	745	49.7
6		B1 O 1 L6	11	63	1023	981	58.6
7		B1 O 1 L7	44	63	1027	959	58.1
8		B1 O 1 L8	5	63	1000	1007	58.7
8D		B1 O 1 L8D	21	63	1037	734	51.8
9		B1 O 1 L9	15	63	1035	987	59.1
10		B1 O 1 L10	42	63	1012	961	57.7
11		B1 O 1 L11	41	63	980	938	56.1
12		B1 O 1 L12	10	63	1016	1000	58.9
13		B1 O 1 L13	37	63	1008	1172	63.7
14		B1 O 1 L14	7	63	1025	1017	59.7
15		B1 O 1 L15	30	63	1015	1057	60.6
16		B1 O 1 L16	14	63	1017	1420	71.2
17		B1 O 1 L17	29	63	1000	978	57.8
18	*	B1 O 1 L18	2	63	1000	1376	69.5
19		B1 O 1 L19	8	63	1020	1200	64.9
20		B1 O 1 L20	47	63	1000	942	56.8
21	*	B1 O 1 L21	16	63	1019	950	57.6
22		B1 O 1 L22	12	63	1030	1000	59.3
23	*	B1 O 1 L23	13	63	1039	1080	62.0
24		B1 O 1 L24	6	63	1007	1010	59.0
25		B1 O 1 L25	1	63	978	984	57.4
26		B1 O 1 L26	22	63	1054	863	56.0
27		B1 O 1 L27	26	63	1030	984	58.9
28		B1 O 1 L28	33	63	1025	962	58.1
29		B1 O 1 L29	25	63	978	882	54.4
30		B1 O 1 L30	48	63	1008	1009	59.0
31		B1 O 1 L31	24	63	952	880	53.6
31D		B1 O 1 L31D	43	63	986	808	52.4
32		B1 O 1 L32	4	63	995	994	58.2
33		B1 O 1 L33	38	63	1029	1017	59.8
34		B1 O 1 L34	18	63	970	1001	57.6
35		B1 O 1 L35	27	63	1029	952	57.9
36		B1 O 1 L36	49	63	995	980	57.7
NBLANK		B1 O 1 NB					
SBLANK		B1 O 1 SB					

* Pump off at end of test

EXHAUST FACE DATA

TEST: ORGANICS # 1
DATE: 12/01/95 PM
METHODS: NIOSH 1300

BARSTOW-MCLB
BOOTH 1 - TESTS
ACUREX PROJECT 8628

D E Initials: lcy
Q A Initials: lcy
Print Date: 05/15/96

GRID LOC	ACUREX Sample #	MEK (ug)	Ethyl Acetate (ug)	n-Butyl alcohol (ug)	MIBK (ug)	Toluene (ug)	Butyl Acetate (ug)	Methyl iso-amyl Keytone (ug)	PGME acetate (ug)	Ethyl benzene (ug)	Xylenes (ug)	Trimethyl benzenes (ug)	Hexyl acetate (ug)	Benzyl alcohol (ug)	Total Organics (ug)
1	BI O 1 L1	699	ND	ND	1498	1854	817	215	ND	855	4543	1138.7	277	ND	11897
2	BI O 1 L2	564	ND	ND	763	1015	358	74.4	ND	363	1771	62.2	85.7	ND	5056
3	BI O 1 L3	751	ND	ND	1587	1935	861	231	ND	905	4802	205.1	292	ND	11569
4	BI O 1 L4	922	ND	ND	1957	2352	1041	277	ND	1083	5742	242	337	ND	13953
5	BI O 1 L5	699	ND	ND	1488	1791	800	211	ND	844	4487	194.1	269	ND	10783
6	BI O 1 L6	1378	ND	ND	3026	3644	1631	456	ND	1706	9109	381.7	523	ND	21855
7	BI O 1 L7	985	ND	ND	2009	2408	1071	285	ND	1126	6009	259.4	361	ND	14513
8	BI O 1 L8	1609	ND	ND	3579	4297	1923	539	10.7	2016	10809	454.9	622	ND	25860
8D	BI O 1 L8D	1236	ND	ND	2784	3384	1507	414	ND	1590	8490	355.7	488	ND	20249
9	BI O 1 L9	1144	ND	ND	2402	2865	1290	342	ND	1360	7299	314.8	439	ND	17456
10	BI O 1 L10	1413	ND	ND	3145 E	3782 E	1702	479	ND	1809	9733 E	409.2	567	ND	23039
11	BI O 1 L11	1202	ND	ND	2637	3144 E	1420	373	ND	1488	7995 E	340.9	473	ND	19073
12	BI O 1 L12	1763	ND	ND	3841	4568	2054	567	ND	2159	11686	491	679	ND	27808
13	BI O 1 L13	1293	ND	ND	2778	3593	1504	402	ND	1594	8726	377.6	529	ND	20797
14	BI O 1 L14	1546	ND	ND	3438	4095	1845	492	ND	1937	10465	438.3	602	ND	24858
15	BI O 1 L15	1230	ND	ND	2750	3307	1490	405	ND	1562	8401	358.6	501	ND	20005
16	BI O 1 L16	1665	ND	ND	4396	4563	1943	520	ND	2055	11119	465.5	644	ND	27371
17	BI O 1 L17	642	ND	ND	1392	1732	769	204	ND	818	4376	193	271	ND	10397
18 *	BI O 1 L18	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF
19	BI O 1 L19	1500	ND	ND	3178	3833	1690	436	ND	1757	9431	389.2	546	ND	22760
20	BI O 1 L20	732	ND	ND	1467	1820	789	203	ND	819	4378	187.6	266	ND	10662
21 *	BI O 1 L21	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF
22	BI O 1 L22	1037	ND	ND	2229	2719	1204	313	ND	1253	6667	278.8	394	ND	16095
23 *	BI O 1 L23	1522	ND	ND	3754	4004	1811	507	ND	1940	10527	452.7	623	ND	25141
24	BI O 1 L24	868	ND	ND	1846	2238	999	270	ND	1053	5589	235	331	ND	13429
25	BI O 1 L25	1413	ND	ND	3587	3825	1738	477	ND	1869	10110	527	586	ND	24132
26	BI O 1 L26	1081	14.4	ND	2471	3091 E	1369	357	ND	1486	7993 E	340.1	467	ND	18670
27	BI O 1 L27	1813	18.1	ND	4138 E	5067 E	2166	556	ND	2253	11646 E	485	525	ND	28667
28	BI O 1 L28	1547	15.5	ND	3471	4176	1860	485	ND	1956	10530	540	605	ND	25186
29	BI O 1 L29	1378	14	ND	3601	3784	1663	447	ND	1765	9490	401.4	557	ND	23100
30	BI O 1 L30	1377	14.1	ND	2973	3588	1616	421	ND	1710	9217	395.7	556	ND	21868
31	BI O 1 L31	1737	18.3	ND	4967 E	6745 E	2754	756	ND	2935	16082 E	669	924	ND	37587
31D	BI O 1 L31D	1169	11.7	ND	2608	3119	1441	407	ND	1689	8401	369.77	516	ND	19731
32	BI O 1 L32	1298	13.7	ND	2905	3537	1600	438	ND	1697	9158	387.9	540	ND	21575
33	BI O 1 L33	1752	15.6	ND	4000	4854	2211	581	ND	2311	12565	534	744	ND	29568
34	BI O 1 L34	844	10.7	ND	1808	2181	989	259	ND	1049	5610	248.9	351	ND	13351
35	BI O 1 L35	711	13.3	ND	1669	2058	931	243	ND	989	5299	231.9	333	ND	12478
36	BI O 1 L36	718	13.6	ND	1613	2052	905	231	ND	975	5223	233.1	328	ND	12292
NBLANK	BI O 1 NB	ND	17.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	17
SBLANK	BI O 1 SB	ND	16.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	17

* Pump off at end of test

E = Estimated Value

EXHAUST FACE 1/2

D.3

TEST: ORGANICS # 2
DATE: 12/02/95 AM
METHODS: NIOSH 1300

BARSTOW MCLB
BOOTH 1 - TESTS
ACUREX PROJECT 8628

D E Initials: al
Q A Initials: wdu
Print Date: 05/01/96

BOOTH Temperature: 63 F P Barr: 28.02 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP
1	B1 O 2 L1	2	71	1009	1032	68.5
2	B1 O 2 L2	42	71	1021	1033	68.9
3	B1 O 2 L3	24	71	1025	1005	68.1
4	B1 O 2 L4	18	71	1004	987	66.8
5	B1 O 2 L5	44	71	1014	1004	67.7
6	B1 O 2 L6	26	71	1026	1061	70.0
7	B1 O 2 L7	22	71	1018	1014	68.2
8	B1 O 2 L8	37	71	1002	981	66.6
8D	B1 O 2 L8D	41	71	1064	999	69.2
9	B1 O 2 L9	9	71	1000	1004	67.3
10	B1 O 2 L10	5	71	1001	1003	67.3
11	B1 O 2 L11	21	71	1001	1022	67.9
12	B1 O 2 L12	10	71	1030	976	67.3
13	B1 O 2 L13	3	71	996	900	63.6
14	B1 O 2 L14	27	71	1045	1044	70.1
15	B1 O 2 L15	11	71	1028	1003	68.2
16	B1 O 2 L16	29	71	997	998	67.0
17	B1 O 2 L17	1	71	1012	975	66.7
18	B1 O 2 L18	33	71	1022	1000	67.9
19	B1 O 2 L19	19	71	1055	956	67.5
20	B1 O 2 L20	43	71	1010	950	65.8
21	B1 O 2 L21	25	71	990	960	65.4
22	B1 O 2 L22	7	71	1002	1002	67.3
23	B1 O 2 L23	13	71	986	1014	67.1
24	B1 O 2 L24	23	71	1024	1014	68.4
25	B1 O 2 L25	14	71	1032	1005	68.4
26	B1 O 2 L26	15	71	1035	998	68.2
27	B1 O 2 L27	47	71	1002	988	66.8
28	B1 O 2 L28	4	71	980	1004	66.6
29	B1 O 2 L29	30	71	1004	991	67.0
30	B1 O 2 L30	16	71	1004	996	67.1
31	B1 O 2 L31	6	71	991	1067	69.1
31D	B1 O 2 L31D	49	71	956	960	64.3
32	B1 O 2 L32	17	71	1017	992	67.4
33	B1 O 2 L33	12	71	984	991	66.3
34	B1 O 2 L34	38	71	1020	1004	67.9
35	B1 O 2 L35	48	71	989	987	66.3
36	B1 O 2 L36	55	71	1026	1022	68.7
NBLANK	B1 O 2 NB					
SBLANK	B1 O 2 SB					

NOTE:

EXHAUST FACE

TEST: ORGANICS # 2
DATE: 12/02/95 AM
METHODS: NIOSH 1300

BARSTOW MCLB
BOOTH 1 - TESTS
ACUREX PROJECT 8628

D E Initials: lcy
Q A Initials: lcy
Print Date: 05/01/96

GRID LOC	ACUREX Sample #	MEK (ug)	Ethyl Acetate (ug)	n-Butyl alcohol (ug)	MIBK (ug)	Toluene (ug)	Butyl Acetate (ug)	Methyl iso-amyl Keytone (ug)	PGME acetate (ug)	Ethyl benzene (ug)	Xylenes (ug)	Trimethyl benzenes (ug)	Hexyl acetate (ug)	Benzyl alcohol (ug)	Total Organics (ug)
1	BI O 2 L1	360	13.6	ND	1145	1328	523	59.2	ND	641	3394	162.4	117	ND	7743
2	BI O 2 L2	492	13.5	ND	1844	2130	845	99.7	ND	1039	5497	222.3	185	ND	12368
3	BI O 2 L3	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF
4	BI O 2 L4	669	11.2	ND	2304	2627	1027	117	ND	1242	6538	249.9	202	ND	14987
5	BI O 2 L5	615	10.7	ND	1967	2210	875	99.7	ND	1059	5611	227.4	187	ND	12862
6	BI O 2 L6	958	14	ND	3964	4189	1659	211	ND	2198	10894	431	355	ND	24873
7	BI O 2 L7	726	12.4	ND	2780	3198	1274	146	ND	1569	8364	332	267	ND	18668
8	BI O 2 L8	1063	14.5	ND	3922 E	4491 E	1792	249	ND	2194	11838 E	479	398	ND	26441
8D	BI O 2 L8D	892	12.9	ND	3429 E	3971 E	1586	215	ND	1964	10566 E	428	353	ND	23417
9	BI O 2 L9	858	15.3	ND	4756	5624	2220	264	ND	2743	14848	586	473	ND	32387
10	BI O 2 L10	662	13.3	ND	2615	2992	1208	142	ND	1503	8046	338.1	266	ND	17785
11	BI O 2 L11	853	14.9	ND	4265	5063	2012	248	ND	2541	13770	587	448	ND	29802
12	BI O 2 L12	1231	13.2	ND	4121 E	4674 E	1856	265	ND	2236	12013 E	471	393	ND	27273
13	BI O 2 L13	764	12.6	ND	2620	2980	1182	140	ND	1465	7781	306.7	243	ND	17494
14	BI O 2 L14	1165	13.2	ND	3988 E	4522 E	1801	254	ND	2200	11852	478	397	ND	26673
15	BI O 2 L15	839	14.9	ND	4938	5964	2380	297	ND	3052	16629	677	542	ND	35333
16	BI O 2 L16	974	13.5	ND	3870 E	4474 E	1779	232	ND	2214	11922 E	479	388	ND	26346
17	BI O 2 L17	382	11.9	ND	1443	1663	666	72.5	ND	829	4404	183.7	149	ND	9804
18	BI O 2 L18	472	11.6	ND	1654	1865	751	88.3	ND	926	4906	204.4	167	ND	11045
19	BI O 2 L19	679	13.8	ND	2602	2993	1179	147	ND	1390	7727	306.9	257	ND	17295
20	BI O 2 L20	534	13.9	ND	1995	2284	891	106	ND	1085	5687	217.6	181	ND	12995
21	BI O 2 L21	994	12.9	ND	3750 E	4327 E	1685	225	ND	2076	10933 E	395.9	323	ND	24722
22	BI O 2 L22	701	14.6	ND	2887	3332 E	1294	157	ND	1575	8328	325	272	ND	18886
23	BI O 2 L23	1174	15.2	ND	5507	5320	2107	272	ND	2628	14276	575	481	ND	32355
24	BI O 2 L24	965	14.4	ND	3978	4664	1841	233	ND	2322	12513	498	413	ND	27441
25	BI O 2 L25	1174	14.4	ND	4967	4850	1907	270	ND	2352	12082	514	433	ND	28563
26	BI O 2 L26	1041	16.6	ND	4098	4741	1871	237	ND	2307	12341	479	395	ND	27527
27	BI O 2 L27	1252	14.8	ND	5971	7038	2792	409	ND	3511	19211	761	635	ND	41595
28	BI O 2 L28	837	13.4	ND	3978	4212	1670	215	ND	2066	11083	437	360	ND	24871
29	BI O 2 L29	1192	13.5	ND	4919	5531	2227	327	ND	2801	15233	625	527	ND	33396
30	BI O 2 L30	1103	17.6	ND	5200	6084	2405	312	ND	2964	15968	628	512	ND	35194
31	BI O 2 L31	1055	14	ND	4624	4737	1914	272	ND	2420	13083	534	443	ND	29096
31D	BI O 2 L31D	732	13	ND	2569	2943	1171	169	ND	1542	7533	291.6	251	ND	17215
32	BI O 2 L32	801	11.6	ND	3486	3442	1378	175	ND	1711	9186	377.7	308	ND	20876
33	BI O 2 L33	633	13.1	ND	2258	2560	1014	122	ND	1238	6566	263.9	214	ND	14882
34	BI O 2 L34	933	16.9	ND	3581	4141	1632	200	ND	2001	10728	421	339	ND	23993
35	BI O 2 L35	443	11.4	ND	1533	1720	680	77.5	ND	823	4331	173.9	143	ND	9936
36	BI O 2 L36	L	L	L	L	L	L	L	L	L	L	L	L	L	L
NBLANK	BI O 2 NB	ND	10.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11
SBLANK	BI O 2 SB	ND	10.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11

NOTE: E = Estimated Value L = Lost Sample

2/2 D3

EXHAUST FACE 1/2 D.3

TEST: ORGANICS # 3
DATE: 12/02/95 PM
METHODS: NIOSH 1300

~~BARSTOW MCLB~~
BOOTH 1 - TESTS
~~ACUREX PROJECT~~ 8628

D E Initials: al
Q A Initials: wdu
Print Date: 05/01/96

BOOTH Temperature: 67 F P Barr: 28.00 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP
1	B1 O 3 L1	17	61	992	1001	57.0
2	B1 O 3 L2	6	61	1067	982	58.6
3	B1 O 3 L3	5	61	1003	1011	57.6
4	B1 O 3 L4	41	61	999	998	57.1
5	B1 O 3 L5	25	61	960	970	55.2
6	B1 O 3 L6	22	61	1014	1001	57.6
7	B1 O 3 L7	10	61	976	969	55.6
8	B1 O 3 L8	29	61	998	996	57.0
8D	B1 O 3 L8D	3	61	993	1000	57.0
9	B1 O 3 L9	13	61	1014	1002	57.7
10	B1 O 3 L10	30	61	991	989	56.6
11	B1 O 3 L11	37	61	981	1008	56.9
12	B1 O 3 L12	4	61	1004	994	57.1
13	B1 O 3 L13	43	61	950	967	54.8
14	B1 O 3 L14	21	61	1022	1023	58.5
15	B1 O 3 L15	2	61	1032	1039	59.2
16	B1 O 3 L16	16	61	996	987	56.7
17	B1 O 3 L17	42	61	1033	1015	58.6
18	B1 O 3 L18	33	61	1000	1000	57.2
19	B1 O 3 L19	1	61	975	988	56.1
20	B1 O 3 L20	23	61	1014	1019	58.1
21	B1 O 3 L21	9	61	1004	1010	57.6
22	B1 O 3 L22	12	61	991	994	56.8
23	B1 O 3 L23	55	61	1022	975	57.1
24	B1 O 3 L24	26	61	1061	1025	59.7
25 *	B1 O 3 L25	48	61	987	Dead	56.5
26	B1 O 3 L26	49	61	960	941	54.4
27	B1 O 3 L27	44	61	1004	1010	57.6
28	B1 O 3 L28	8	61	1001	982	56.7
29	B1 O 3 L29	18	61	987	960	55.7
30	B1 O 3 L30	14	61	1005	1008	57.6
31	B1 O 3 L31	11	61	1003	1010	57.6
31D	B1 O 3 L31D	27	61	1044	1040	59.6
32	B1 O 3 L32	15	61	998	1000	57.1
33	B1 O 3 L33	38	61	1004	1000	57.3
34	B1 O 3 L34	7	61	1002	997	57.2
35	B1 O 3 L35	47	61	988	964	55.8
36	B1 O 3 L36	24	61	1005	991	57.1

* Dead battery at end of test

EXHAUST FACE

TEST: ORGANICS # 3
DATE: 12/02/95 PM
METHODS: NIOSH 1300

BARSTOW MCLB
BOOTH 1 - TESTS
ACUREX PROJECT 8628

D B Initials: al
Q A Initials: wdu
Print Date: 05/01/96

GRID LOC	ACUREX Sample #	MEK (ug)	Ethyl Acetate (ug)	n-Butyl alcohol (ug)	MIBK (ug)	Toluene (ug)	Butyl Acetate (ug)	Methyl iso-amyl Keytone (ug)	PGME acetate (ug)	Ethyl benzene (ug)	Xylenes (ug)	Trimethyl benzenes (ug)	Hexyl acetate (ug)	Benzyl alcohol (ug)	Total Organics (ug)
1	BI O 3 L1	134	ND	ND	417	514	203	25.9	ND	239	1241	51	48.7	ND	2874
2	BI O 3 L2	477	ND	ND	1561	1752	714	90.6	ND	836	4419	178.1	160	ND	10188
3	BI O 3 L3	326	ND	ND	1143	1334	542	67.9	ND	640	3363	137.3	124	ND	7677
4	BI O 3 L4	554	ND	ND	1769	1987	806	99.7	ND	961	5105	211	186	ND	11679
5	BI O 3 L5	494	ND	ND	1916	2265	913	121	ND	1106	5836	238.2	209	ND	13098
6	BI O 3 L6	602	ND	ND	2123	2436	976	121	ND	1175	6203	251.2	213	ND	14100
7	BI O 3 L7	674	ND	ND	2369	2706	1101	140	ND	1338	7123	292.7	256	ND	16000
8	BI O 3 L8	717	ND	ND	2599	2961	1193	151	ND	1434	7651	314	263	ND	17283
8D	BI O 3 L8D	815	ND	ND	3886	4639	1888	256	ND	2348	12715	532	450	ND	27529
9	BI O 3 L9	697	ND	ND	2545	2979	1206	155	ND	1467	7785	318.5	274	ND	17427
10	BI O 3 L10	707	ND	ND	2746	3696	1301	168	ND	1611	9155	354.2	295	ND	20033
11	BI O 3 L11	682	ND	ND	2584	3007	1218	157	ND	1481	7889	325.8	279	ND	17623
12	BI O 3 L12	702	ND	ND	2710	3524	1280	164	ND	1564	8921	347.6	292	ND	19505
13	BI O 3 L13	480	ND	ND	1802	2111	861	116	ND	1048	5546	233.7	202	ND	12400
14	BI O 3 L14	685	ND	ND	2601	2992	1216	157	ND	1474	7854	323.5	272	ND	17575
15	BI O 3 L15	516	ND	ND	1955	2299	942	128	ND	1143	6057	254.2	221	ND	13515
16	BI O 3 L16	743	ND	ND	2940	3493	1437	204	ND	1786	9632	414.2	354	ND	21003
17	BI O 3 L17	320	ND	ND	1294	1565	647	91	ND	798	4221	215.4	163	ND	9314
18	BI O 3 L18	306	ND	ND	1141	1343	556	72.2	ND	668	3542	182.1	140	ND	7950
19	BI O 3 L19	623	12.3	ND	1973	2255	914	129	ND	1109	5861	286.6	218	ND	13381
20	BI O 3 L20	410	ND	ND	1982	2393	978	142	ND	1183	6219	304	234	ND	13845
21	BI O 3 L21	1029	ND	ND	3418	3849	1562	232	ND	1861	9930	472	355	ND	22708
22	BI O 3 L22	465	ND	ND	1752	2058	842	122	ND	1018	5372	265.9	202	ND	12097
23	BI O 3 L23	897	ND	ND	2989	3594	1393	208	ND	1714	9157	372.8	321	ND	20646
24	BI O 3 L24	687	ND	ND	2630	3073	1251	181	ND	1526	8157	396	297	ND	18198
25 *	BI O 3 L25	1034	ND	ND	3704	4114	1649	250	ND	2026	10960	534	393	ND	24664
26	BI O 3 L26	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF
27	BI O 3 L27	938	ND	ND	3677	4173	1669	252	ND	2027	10900	516	378	ND	24530
28	BI O 3 L28	727	ND	ND	2372	2705	1094	156	ND	1308	6959	333	248	ND	15902
29	BI O 3 L29	941	ND	ND	3917	3750	1520	232	ND	1853	9966	411	355	ND	22945
30	BI O 3 L30	766	ND	ND	2510	2871	1168	170	ND	1415	7570	371	277	ND	17118
31	BI O 3 L31	904	ND	ND	4523	4335	1388	213	ND	1682	10785	378.6	330	ND	24539
31D	BI O 3 L31D	1020	ND	ND	4168	4500	1834	276	ND	2215	11920	490	428	ND	26851
32	BI O 3 L32	697	ND	ND	2253	2544	1040	149	ND	1241	6594	275.3	244	ND	15037
33	BI O 3 L33	740	ND	ND	3261	3602	1496	234	ND	1860	8291	439	384	ND	20307
34	BI O 3 L34	643	ND	ND	2083	2354	962	139	ND	1150	6111	252.2	222	ND	13916
35	BI O 3 L35	403	ND	ND	1782	2125	886	131	ND	1088	5785	293	225	ND	12718
36	BI O 3 L36	332	ND	ND	1238	1486	613	90.5	ND	742	3922	166.5	151	ND	8741

* Dead battery at end of test

2/2 D3

EXHAUST FACE DATA

TEST: ORGANICS # 1 BARSTOW MCLB
DATE: 12/05/95 AM BOOTH 2 - TESTS
METHODS: NIOSH 1300 ACUREX PROJECT 8625

D E Initials: al
Q A Initials: wdu
Print Date: 05/01/96

BOOTH Temperature: 74 F P Barr: 28.18 in Hg

GRID LOC		ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP
1		B2 O 1 L1	9	70	1012	1007	65.8
2		B2 O 1 L2	2	70	1034	1006	66.5
3		B2 O 1 L3	23	70	1018	1011	66.1
4		B2 O 1 L4	13	70	1005	1001	65.4
5		B2 O 1 L5	43	70	996	1008	65.3
6		B2 O 1 L6	12	70	996	1010	65.4
7		B2 O 1 L7	4	70	995	1018	65.6
8		B2 O 1 L8	8	70	1017	1001	65.8
9		B2 O 1 L9	21	70	996	1007	65.3
10		B2 O 1 L10	33	70	1011	1024	66.3
11		B2 O 1 L11	21	70	996	1007	65.3
11D		B2 O 1 L11D	17	70	980	984	64.0
12		B2 O 1 L12	38	70	1015	1015	66.2
13		B2 O 1 L13	15	70	1005	1015	65.8
14		B2 O 1 L14	6	70	1040	995	66.3
15		B2 O 1 L15	27	70	1007	1005	65.6
16		B2 O 1 L16	7	70	1000	1006	65.4
17		B2 O 1 L17	10	70	1001	1015	65.7
18		B2 O 1 L18	26	70	1019	1013	66.2
19	*	B2 O 1 L19	24	70	1014	Dead	66.1
19D		B2 O 1 L19D	1	70	1004	997	65.2
20		B2 O 1 L20	3	70	1012	1008	65.8
21		B2 O 1 L21	16	70	1000	1007	65.4
22		B2 O 1 L22	11	70	1021	1010	66.2
23		B2 O 1 L23	22	70	1000	996	65.1
24		B2 O 1 L24	5	70	1008	1010	65.8
25		B2 O 1 L25	37	70	1008	995	65.3
26		B2 O 1 L26	14	70	1006	1019	66.0
27		B2 O 1 L27	42	70	1004	992	65.1
28		B2 O 1 L28	18	70	1000	1002	65.3
29		B2 O 1 L29	44	70	995	1000	65.0
30		B2 O 1 L30	25	70	1003	1001	65.3
BLANK							

* Dead battery at end of test

EXHAUST FACE DATA

TEST: ORGANICS # 1
DATE: ~~12/05/95 AM~~
METHODS: NIOSH 1300

BARSTOW MCLB
BOOTH 2 - TESTS
~~ACUREX PROJECT 8625~~

D E Initials: al
Q A Initials: wdu
Print Date: 05/01/96

GRID LOC	ACUREX Sample #	MEK (ug)	Ethyl Acetate (ug)	n-Butyl alcohol (ug)	MIBK (ug)	Toluene (ug)	Butyl Acetate (ug)	Methyl iso-amyl Keytone (ug)	PGME acetate (ug)	Ethyl benzene (ug)	Xylenes (ug)	Trimethyl benzenes (ug)	Hexyl acetate (ug)	Benzyl alcohol (ug)	Total Organics (ug)
1	B2 O 1 L1	190	ND	121	108	22.6	101	ND	ND	73.5	373	53.9	141	ND	1184
2	B2 O 1 L2	295	15	109	225	397	187	ND	ND	143	704	75.2	179	ND	2329
3	B2 O 1 L3	473	9.3	113	360	573	309	ND	ND	222	1094	113.7	287	ND	3554
4	B2 O 1 L4	728	ND	116	528	793	454	ND	ND	314	1526	119.7	353	ND	4932
5	B2 O 1 L5	1971	ND	706	1264	1644	1036	ND	ND	699	3442	600	918	ND	12280
6	B2 O 1 L6	199	ND	120	124	262	111	ND	ND	84.9	422	49.7	138	ND	1511
7	B2 O 1 L7	753	ND	328	617	903	486	ND	ND	354	1730	180.5	396	ND	5748
8	B2 O 1 L8	877	ND	377	735	1058	631	ND	ND	433	2118	215.2	508	ND	6952
9	B2 O 1 L9	1082	ND	263	788	1082	688	ND	ND	473	2323	187.4	524	ND	7410
10	B2 O 1 L10	1073	ND	244	725	987	625	ND	ND	418	2040	160.4	476	ND	6748
11	B2 O 1 L11	632	27.3	110	559	802	455	ND	ND	327	1602	177.1	385	ND	5076
11D	B2 O 1 L11D	768	11.9	352	651	928	530	ND	ND	380	1851	203.9	438	ND	6114
12	B2 O 1 L12	1548	ND	834	1280	1731	1024	ND	ND	705	3424	335.6	761	ND	11643
13	B2 O 1 L13	1257	ND	536	1004	1409	864	ND	ND	595	2886	268.4	621	ND	9440
14	B2 O 1 L14	514	ND	123	359	567	320	ND	ND	230	1125	91.1	287	ND	3616
15	B2 O 1 L15	433	ND	122	243	368	216	ND	ND	151	746	63.6	213	ND	2556
16	B2 O 1 L16	275	ND	119	172	301	153	ND	ND	113	564	85.9	178	ND	1961
17	B2 O 1 L17	1458	ND	845	1185	1603	935	ND	ND	656	3193	366.8	726	ND	10968
18	B2 O 1 L18	1747	ND	859	1347	1808	1107	ND	ND	740	3612	368.9	875	ND	12464
19 *	B2 O 1 L19	2491	ND	935	1989	2576	1698	ND	ND	1146	5644	884	1323	ND	18686
19D	B2 O 1 L19D	2411	ND	946	2042	2669	1748	ND	ND	1182	5844	918	1355	ND	19115
20	B2 O 1 L20	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF
21	B2 O 1 L21	515	14.5	202	311	503	244	ND	ND	174	825	107.5	213	ND	3109
22	B2 O 1 L22	1405	ND	549	1156	1632	934	ND	ND	672	3277	399.5	785	ND	10810
23	B2 O 1 L23	1936	ND	813	1334	1780	1074	ND	ND	712	3457	347.8	820	ND	12274
24	B2 O 1 L24	2014	ND	687	1451	1901	1238	ND	ND	837	4134	671	1031	ND	13964
25	B2 O 1 L25	638	ND	109	300	444	260	ND	ND	179	880	148.7	239	ND	3198
26	B2 O 1 L26	512	11.5	345	363	556	294	ND	ND	211	1040	229.1	298	ND	3860
27	B2 O 1 L27	1418	13.2	1089	1086	1471	837	ND	ND	586	2868	479	714	ND	10561
28	B2 O 1 L28	1748	ND	1297	1325	1771	1043	ND	ND	718	3519	518	897	ND	12836
29	B2 O 1 L29	2842	ND	1092	1886	2440	1484	ND	ND	990	4833	838	1210	ND	17615
30	B2 O 1 L30	707	8.3	125	406	592	346	ND	ND	238	1152	92.3	308	ND	3975
BLANK															

PF = pump failure

* Dead battery at end of test

2/2.D.1

EXHAUST FACE DATA

1/2 D3

TEST: ORGANICS # 2 | BARSTOW ~~MCLB~~ | D E Initials: al
DATE: 12/05/95 PM | BOOTH 2 - TESTS | Q A Initials: wdu
METHODS: NIOSH 1300 | ~~ACUREX PROJECT~~ 8625 | Print Date: 05/01/96

BOOTH Temperature: 78 F P Barr: 28.18 in Hg

GRID LOC		ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP
1		B2 O 2 L1	22	60	996	1003	55.4
2		B2 O 2 L2	12	60	1010	1018	56.2
3		B2 O 2 L3	8	60	1018	1016	56.4
4		B2 O 2 L4	33	60	1009	1001	55.7
5		B2 O 2 L5	14	60	1019	1029	56.8
6		B2 O 2 L6	1	60	997	1025	56.1
7		B2 O 2 L7	14	60	1019	1029	56.8
8		B2 O 2 L8	38	60	1015	1001	55.9
9		B2 O 2 L9	9	60	1007	1030	56.5
10	*	B2 O 2 L10	32	60	1033	300	37.0
11		B2 O 2 L11	5	60	1010	1005	55.9
11D		B2 O 2 L11D	21	60	1007	1007	55.8
12		B2 O 2 L12	25	60	1001	1001	55.5
13		B2 O 2 L13	26	60	1013	1017	56.3
14		B2 O 2 L14	10	60	1015	1035	56.8
15		B2 O 2 L15	18	60	1002	1013	55.9
16		B2 O 2 L16	27	60	1005	1001	55.6
17		B2 O 2 L17	2	60	1006	1015	56.0
18		B2 O 2 L18	43	60	1008	1002	55.7
19		B2 O 2 L19	11	60	1010	1002	55.8
19D		B2 O 2 L19D	44	60	1000	999	55.4
20		B2 O 2 L20	4	60	1018	1019	56.5
21		B2 O 2 L21	17	60	984	1001	55.0
22		B2 O 2 L22	37	60	995	1043	56.5
23		B2 O 2 L23	16	60	1007	1000	55.7
24		B2 O 2 L24	23	60	1011	1043	57.0
25		B2 O 2 L25	30	60	1012	663	46.4
26		B2 O 2 L26	15	60	1015	1015	56.3
27		B2 O 2 L27	7	60	1006	980	55.1
28		B2 O 2 L28	3	60	1008	1012	56.0
29		B2 O 2 L29	13	60	1001	1028	56.3
30		B2 O 2 L30	42	60	992	996	55.1
BLANK		B2 O 2 B					0.0

* Dead battery at end of test

EXHAUST FACE DATA

TEST: ORGANICS # 2
DATE: 12/05/95 PM
METHODS: NIOSH 1300

BARSTOW MCLB
BOOTH 2 - TESTS
ACUREX PROJECT 8625

D E Initials: al
Q A Initials: wdu
Print Date: 05/01/96

GRID LOC	ACUREX Sample #	MEK (ug)	Ethyl Acetate (ug)	n-Butyl alcohol (ug)	MIBK (ug)	Toluene (ug)	Butyl Acetate (ug)	Methyl iso-amyl Keytone (ug)	PGME acetate (ug)	Ethyl benzene (ug)	Xylenes (ug)	Trimethyl benzenes (ug)	Hexyl acetate (ug)	Benzyl alcohol (ug)	Total Organics (ug)
1	B2 O 2 L1	162	7.7	112	110	221	73.8	ND	ND	55.9	273	70.3	61.9	ND	1148
2	B2 O 2 L2	363	ND	257	337	689	220	ND	ND	171	829	169.6	160	ND	3196
3	B2 O 2 L3	396	ND	270	363	577	238	ND	ND	185	901	110.8	176	ND	3217
4	B2 O 2 L4	478	ND	207	388	487	257	ND	ND	200	978	103.5	197	ND	3296
5	B2 O 2 L5	198	12.5	81.9	149	191	99.7	ND	ND	77.2	376	76	83.7	ND	1345
6	B2 O 2 L6	203	ND	136	146	310	97.8	ND	ND	73.3	360	91.5	80.4	ND	1498
7	B2 O 2 L7	900	ND	744	938	1312	3.53	ND	ND	475	2310	365	409	ND	7457
8	B2 O 2 L8	463	ND	344	473	613	323	ND	ND	251	1231	158.3	239	ND	4095
9	B2 O 2 L9	553	ND	228	495	591	328	ND	ND	256	1235	125.8	229	ND	4041
10 *	B2 O 2 L10	68.7	ND	27.9	50	63.6	35.3	ND	ND	27.7	139	26	35	ND	473
11	B2 O 2 L11	473	ND	509	485	737	328	ND	ND	254	1252	195.3	240	ND	4473
11D	B2 O 2 L11D	457	ND	503	481	721	320	ND	ND	247	1206	184.6	224	ND	4344
12	B2 O 2 L12	965	ND	921	1073	1349	711	ND	ND	550	2701	359.3	496	ND	9125
13	B2 O 2 L13	942	ND	ND	429	560	2104	523	ND	476	2307	360	444	ND	8145
14	B2 O 2 L14	605	ND	253	575	657	394	ND	ND	311	1540	159.9	325	ND	4820
15	B2 O 2 L15	224	ND	108	188	226	130	ND	ND	101	496	84.8	109	ND	1667
16	B2 O 2 L16	370	ND	307	325	442	214	ND	ND	165	802	178.7	164	ND	2968
17	B2 O 2 L17	863	ND	993	948	1206	625	ND	ND	481	2350	343.7	416	ND	8226
18	B2 O 2 L18	936	ND	853	1015	1215	678	ND	ND	528	2603	356.9	500	ND	8685
19	B2 O 2 L19	1258	ND	486	1056	1187	688	ND	ND	531	2601	261.9	493	ND	8562
19D	B2 O 2 L19D	1260	8.6	470	1039	1171	681	ND	ND	527	2571	258.8	493	ND	8479
20	B2 O 2 L20	457	16.6	186	474	533	330	ND	ND	259	1281	200.9	268	ND	4006
21	B2 O 2 L21	362	ND	330	308	435	204	ND	ND	157	767	148.5	156	ND	2868
22	B2 O 2 L22	1308	9.9	1145	1363	1640	876	ND	ND	677	3298	406.9	591	ND	11315
23	B2 O 2 L23	991	ND	627	882	1144	587	ND	ND	426	2211	263.4	381	ND	7512
24	B2 O 2 L24	1182	10.3	376	956	1161	641	ND	ND	462	2407	220	425	ND	7840
25	B2 O 2 L25	311	7.53	129	275	342	189	ND	ND	138	721	70.8	136	ND	2319
26	B2 O 2 L26	608	18.4	523	602	840	412	ND	ND	304	1588	261.3	293	ND	5450
27	B2 O 2 L27	1176	17.5	1166	1119	1462	736	ND	ND	533	2741	428	478	ND	9857
28	B2 O 2 L28	1483	14.1	1041	1400	1796	908	ND	ND	658	3408	376.3	574	ND	11658
29	B2 O 2 L29	1484	10.1	590	1198	1475	782	ND	ND	567	2953	289.1	533	ND	9881
30	B2 O 2 L30	970	9.1	358	862	1043	580	ND	ND	424	2230	213.4	437	ND	7127
BLANK	B2 O 2 B	ND	7.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8

* Dead battery at end of test

D-3

1/2 D3

EXHAUST FACE DATA

TEST: ORGANICS # 3 BARSTOW MCLB D E Initials: al
DATE: 12/06/95 AM BOOTH 2 - TESTS Q A Initials: wdu
METHODS: NIOSH 1300 ACUREX PROJECT 8625 Print Date: 05/01/96

BOOTH Temperature: 75 F P Barr: 28.2 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP
1	B2 O 3 L1	23	61	1007	1014	57.3
2	B2 O 3 L2	32	61	1033	1035	58.7
3	B2 O 3 L3	26	61	1000	990	56.5
4	B2 O 3 L4	2	61	1000	1010	57.0
5	B2 O 3 L5	7	61	1006	1060	58.6
6	B2 O 3 L6	10	61	1023	1013	57.8
7	B2 O 3 L7	3	61	1004	1016	57.3
8	B2 O 3 L8	9	61	1008	1026	57.7
9	B2 O 3 L9	21	61	1014	1012	57.5
10	B2 O 3 L10	6	61	1015	1039	58.3
11	B2 O 3 L11	16	61	1007	1001	57.0
11D	B2 O 3 L11D	27	61	1011	1001	57.1
12	B2 O 3 L12	11	61	1012	1006	57.3
13	B2 O 3 L13	1	61	1000	1008	57.0
14	B2 O 3 L14	13	61	1002	1004	56.9
15	B2 O 3 L15	20	61	997	1036	57.7
16	B2 O 3 L16	25	61	1020	1042	58.5
17	B2 O 3 L17	43	61	1003	1002	56.9
18	B2 O 3 L18	42	61	1017	998	57.2
19	B2 O 3 L19	4	61	1001	1030	57.6
19D	B2 O 3 L19D	33	61	1008	1009	57.2
20	B2 O 3 L20	44	61	1002	1003	56.9
21	B2 O 3 L21	12	61	1011	1018	57.6
22	B2 O 3 L22	17	61	1006	1011	57.2
23	B2 O 3 L23	41	61	1004	982	56.3
24	B2 O 3 L24	15	61	1016	1060	58.9
25	B2 O 3 L25	38	61	1011	1003	57.1
26	B2 O 3 L26	18	61	1015	980	56.6
27	B2 O 3 L27	37	61	1007	1003	57.0
28	B2 O 3 L28	22	61	1015	1000	57.2
29	B2 O 3 L29	8	61	1000	1002	56.8
30	B2 O 3 L30	5	61	1009	1018	57.5
BLANK	B2 O 3 B					0.0

EXHAUST FACE DATA

TEST: ORGANICS # 3
DATE: 12/06/95 AM
METHODS: NIOSH 1300

BARSTOW MCLB
BOOTH 2 - TESTS
ACUREX PROJECT 8625

D E Initials: al
Q A Initials: wdu
Print Date: 05/01/96

GRID LOC	ACUREX Sample #	MEK (ug)	Ethyl Acetate (ug)	n-Butyl alcohol (ug)	MIBK (ug)	Toluene (ug)	Butyl Acetate (ug)	Methyl iso-amyl Keytone (ug)	PGME acetate (ug)	Ethyl benzene (ug)	Xylenes (ug)	Trimethyl benzenes (ug)	Hexyl acetate (ug)	Benzyl alcohol (ug)	Total Organics (ug)
1	B2 O 3 L1	332	13.4	231	272	356	725	ND	ND	86.7	586	76.1	153.5	ND	2832
2	B2 O 3 L2	557	8	299	474	620	1237	ND	ND	145	979	115.3	222	ND	4656
3	B2 O 3 L3	847	9.9	361	764	946	2015	ND	ND	236	1593	154.9	340	ND	7267
4	B2 O 3 L4	955	13.8	294	659	821	1727	ND	ND	202	1362	130.3	323	ND	6487
5	B2 O 3 L5	482	11.7	188	339	423	910	ND	ND	109	743	79.6	200	ND	3485
6	B2 O 3 L6	400	20.1	230	327	426	857	ND	ND	102	692	83.6	169	ND	3307
7	B2 O 3 L7	1334	9.9	628	1286	1568	3367	ND	ND	392	2640	268.6	530	ND	12024
8	B2 O 3 L8	720	16	241	609	757	1633	ND	ND	192	1296	113.2	304	ND	5881
9	B2 O 3 L9	1205	12.5	315	989	1209	2642	ND	ND	311	2094	205.4	468	ND	9451
10	B2 O 3 L10	366	17.1	166	254	316	701	ND	ND	84.4	581	68	173	ND	2727
11	B2 O 3 L11	1030	8.4	584	950	1169	2470	ND	ND	286	1930	224.1	406	ND	9058
11D	B2 O 3 L11D	1007	7.8	568	942	1163	2452	ND	ND	286	1909	221.7	403	ND	8960
12	B2 O 3 L12	1670	13.9	677	1695	2027	4438	ND	ND	516	3472	304.3	688	ND	15501
13	B2 O 3 L13	1656	11.5	568	1314	1604	3503	ND	ND	407	2743	243.1	629	ND	12679
14	B2 O 3 L14	823	9.1	344	679	819	1833	ND	ND	215	1460	143	341	ND	6666
15	B2 O 3 L15	306	12.7	166	211	260	594	ND	ND	71.6	498	63.7	157	ND	2340
16	B2 O 3 L16	651	12.9	402	568	706	1465	ND	ND	172	1155	133.2	252	ND	5517
17	B2 O 3 L17	1656	12.1	924	1509	1848	3859	ND	ND	452	3036	345.8	631	ND	14273
18	B2 O 3 L18	1198	14.1	452	1007	1251	2617	ND	ND	307	2058	181.8	479	ND	9565
19	B2 O 3 L19	2149	13.5	801	1543	1916	4562	ND	ND	467	3144	315.6	769	ND	15680
19D	B2 O 3 L19D	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF
20	B2 O 3 L20	523	11.8	282	432	525	1198	ND	ND	142	971	190.8	259	ND	4535
21	B2 O 3 L21	1001	22	545	893	1100	2280	ND	ND	265	1779	308	381	ND	8574
22	B2 O 3 L22	1791	12.2	811	1470	1802	3667	ND	ND	426	2849	487	629	ND	13944
23	B2 O 3 L23	1041	ND	404	632	857	1656	ND	ND	191	1268	268	380	ND	6697
24	B2 O 3 L24	1507	13.7	699	1205	1446	3212	ND	ND	374	2541	467	630	ND	12095
25	B2 O 3 L25	753	8.3	494	585	723	1557	ND	ND	182	1244	265	334	ND	6145
26	B2 O 3 L26	890	ND	549	760	936	1941	ND	ND	227	1530	285	351	ND	7469
27	B2 O 3 L27	1714	7.5	926	1404	1711	3499	ND	ND	405	2728	495	626	ND	13516
28	B2 O 3 L28	1509	21.5	812	1242	1528	3109	ND	ND	361	2427	471	573	ND	12054
29	B2 O 3 L29	2952	12.6	897	1532	2235	4323	ND	ND	496	3281	353	1399	ND	17481
30	B2 O 3 L30	2017	12.1	978	1583	1932	4146	ND	ND	482	3291	650	873	ND	15964
BLANK	B2 O 3 B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0

PF = Pump Failure

D3

EXHAUST FACE DATA 1/2 D-3

TEST: ORGANICS # 1
~~DATE: 12/09/95 PM~~
METHODS: NIOSH 1300

~~BARSTOW MCLB~~
BOOTH 3 - TESTS
ACUREX PROJECT 8625

D E Initials: al
Q A Initials: wdu
Print Date: 05/01/96

BOOTH Temperature: 76 F P Barr: 28.15 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP
1	B3 O 1 L1	17	62	1008	1023	58.4
2	B3 O 1 L2	3	62	1005	1048	59.0
3	B3 O 1 L3	18	62	1019	1004	58.1
4	B3 O 1 L4	22	62	1005	1003	57.7
5	B3 O 1 L5	2	62	1012	996	57.7
6	B3 O 1 L6	12	62	1001	1006	57.7
7	B3 O 1 L7	43	62	1016	998	57.9
8	B3 O 1 L8	42	62	1005	1011	57.9
9	B3 O 1 L9	37	62	1015	975	57.2
10	B3 O 1 L10	30	62	992	970	56.4
11	B3 O 1 L11	8	62	1016	1014	58.3
12	B3 O 1 L12	15	62	1000	1018	58.0
13	B3 O 1 L13	41	62	997	934	55.5
14	B3 O 1 L14	1	62	1009	1001	57.7
14D	B3 O 1 L14D	24	62	1009	982	57.2
15	B3 O 1 L15	7	62	1012	1049	59.2
16	B3 O 1 L16	28	62	1009	973	56.9
17	B3 O 1 L17	6	62	985	988	56.7
18	B3 O 1 L18	25	62	989	1009	57.4
19	B3 O 1 L19	44	62	1006	983	57.1
20	B3 O 1 L20	27	62	991	1039	58.3
21	B3 O 1 L21	4	62	998	990	57.1

EXHAUST FREE Dark

TEST: ORGANICS # 1
DATE: 12/09/95 PM
METHODS: NIOSH 1300
TEST: ORGANICS # 1

BARSTOW MCLB
BOOTH 3 - TESTS
ACUREX PROJECT 8625

D E Initials: al
Q A Initials: wdu
Print Date: 05/01/96

GRID LOC	ACUREX Sample #	MEK (ug)	Ethyl Acetate (ug)	n-Butyl alcohol (ug)	MIBK (ug)	Toluene (ug)	Butyl Acetate (ug)	iso-amyl Keytone (ug)	PGME acetate (ug)	Ethyl benzene (ug)	Xylenes (ug)	Trimethyl benzenes (ug)	Hexyl acetate (ug)	Benzyl alcohol (ug)	Total Organics (ug)
1	B3 O 1 L1	177	ND	14.8	43.1	92	44.3	ND	ND	23.2	126	27.1	48.3	ND	596
2	B3 O 1 L2	114	9.4	14	59.2	324	58.1	ND	ND	32.6	177	32.1	57.9	ND	878
3	B3 O 1 L3	112.6	ND	16.9	30	367	29.1	ND	ND	15.6	86	20.4	30.2	ND	708
4	B3 O 1 L4	90.4	27.5	18	29	383	29.3	ND	ND	16.1	90	21.9	33.2	ND	738
5	B3 O 1 L5	247	ND	37.2	99.7	175	92.5	ND	ND	51.9	276	47.8	84.8	ND	1112
6	B3 O 1 L6	183	14.9	59.2	85.8	475	77.4	ND	ND	44.5	235	45.2	71.8	ND	1292
7	B3 O 1 L7	245	ND	67	108	487	93.3	ND	ND	53	278	49.9	77.5	ND	1459
8	B3 O 1 L8	295	ND	93.6	138	225	125	ND	ND	70.8	374	65.4	109	ND	1496
9	B3 O 1 L9	464	7.7	437	268	546	240	ND	ND	139	737	155.8	210	ND	3205
10	B3 O 1 L10	418	ND	342	240	610	211	ND	ND	122	647	133.2	181	ND	2904
11	B3 O 1 L11	331	14.8	206	160	491	140	ND	ND	80.5	423	88.2	121	ND	2056
12	B3 O 1 L12	471	ND	208	237	374	207	ND	ND	117	613	108.7	172	ND	2508
13	B3 O 1 L13	890	21.4	1525	586	1017	532	ND	ND	312	1665	233.6	472	ND	7254
14	B3 O 1 L14	1104	8.1	1700	717	1286	650	ND	ND	379	2026	267.1	602	ND	8739
14D	B3 O 1 L14D	1003	ND	1487	657	1183	595	ND	ND	346	1842	230.6	539	ND	7883
15	B3 O 1 L15	370	ND	156	130	424	111	ND	ND	64	336	64.7	97.6	ND	1753
16	B3 O 1 L16	455	ND	467	237	395	207	ND	ND	119	628	137.7	184	ND	2830
17	B3 O 1 L17	622	ND	684	334	676	283	ND	ND	163	850	111.3	228	ND	3951
18	B3 O 1 L18	690	18.9	906	380	823	329	ND	ND	190	1002	159.9	279	ND	4778
19	B3 O 1 L19	402	ND	435	208	367	184	ND	ND	105	556	90.3	173.2	ND	2521
20	B3 O 1 L20	506	17.2	610	261	581	225	ND	ND	129	682	139.1	203	ND	3353
21	B3 O 1 L21	1271	ND	334	113	410	118	ND	ND	55.9	296	67.9	125	ND	2791

2/2 0.3-

EXHAUST Face Dark 1/2

TEST: ORGANICS # 2 BARSTOW MCLB D E Initials: al
DATE: 12/11/95 AM BOOTH 3 - TESTS Q A Initials: wdu
METHODS: NIOSH 1300 ACUREX PROJECT 8625 Print Date: 5/1/96

BOOTH Temperature: 71 F P Barr: 28.08 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP
1	B3 O 2 L1	6	60	1003	997	56.0
2	B3 O 2 L2	7	60	1003	1061	57.8
3	B3 O 2 L3	25	60	1005	1005	56.3
4	B3 O 2 L4	2	60	1005	1082	58.4
5	B3 O 2 L5	12	60	1004	997	56.0
6	B3 O 2 L6	42	60	1008	1028	57.0
7	B3 O 2 L7	21	60	1010	1018	56.8
8	B3 O 2 L8	29	60	1027	1060	58.4
9	B3 O 2 L9	40	60	1000	1004	56.1
10	B3 O 2 L10	15	60	1020	1050	58.0
11	B3 O 2 L11	17	60	1016	1016	56.9
12	B3 O 2 L12	44	60	1006	1001	56.2
13	B3 O 2 L13	43	60	1006	996	56.0
14	B3 O 2 L14	4	60	1000	1001	56.0
14D	B3 O 2 L14D	5	60	1007	1045	57.4
15	B3 O 2 L15	1	60	1011	1023	56.9
16	B3 O 2 L16	8	60	1004	1000	56.1
17	B3 O 2 L17	41	60	1011	1080	58.5
18	B3 O 2 L18	22	60	1013	1000	56.4
19	B3 O 2 L19	30	60	1018	1025	57.2
20	B3 O 2 L20	39	60	1012	1035	57.3
21	B3 O 2 L21	27	60	1004	1062	57.8

EXHAUST FATE DATA

TEST: ORGANICS # 2
DATE: 12/11/95 AM
METHODS: NIOSH 1300

BARSTOW MCLB
BOOTH 3 - TESTS
ACUREX PROJECT 8625

D E Initials: al
Q A Initials: wdu
Print Date: 05/01/96

GRID LOC	ACUREX Sample #	MEK (ug)	Ethyl Acetate (ug)	n-Butyl alcohol (ug)	MIBK (ug)	Toluene (ug)	Butyl Acetate (ug)	Methyl iso-amyl Keytone (ug)	PGME acetate (ug)	Ethyl benzene (ug)	Xylenes (ug)	Trimethyl benzenes (ug)	Hexyl acetate (ug)	Benzyl alcohol (ug)	Total Organics (ug)
1	B3 O 2 L1	244	19.9	22.5	46.6	89.8	32.3	ND	ND	42.6	238	25.9	39.8	ND	801
2	B3 O 2 L2	206	ND	32.2	44.2	345	29.3	ND	ND	40.3	225	24.4	37.9	ND	984
3	B3 O 2 L3	239	9.3	34.6	44.2	475	29.9	ND	ND	42.3	236	26.2	39.7	ND	1176
4	B3 O 2 L4	214	8.4	25.2	44.2	454	29.5	ND	ND	43.2	233	23	34.2	ND	1109
5	B3 O 2 L5	328	8.2	32.9	92.9	144	60.2	ND	ND	64.1	352	32.1	58	ND	1172
6	B3 O 2 L6	483	9.6	190	137	509	83.1	ND	ND	84.8	453	37	67.3	ND	2054
7	B3 O 2 L7	425	8.5	63.4	128	677	78.6	ND	ND	80.8	436	34.8	64.8	ND	1997
8	B3 O 2 L8	413	ND	61.1	141	209	91.8	ND	ND	88.6	483	66.6	78	ND	1632
9	B3 O 2 L9	1246	9.6	434	619	900	388	ND	ND	315	1638	116.3	213.8	ND	5880
10	B3 O 2 L10	1209	31.8	591.4	507	888	305	ND	ND	259	1338	113.5	176	ND	5419
11	B3 O 2 L11	526	31.3	69.4	174	597	108	ND	ND	101	534	67.1	76.5	ND	2284
12	B3 O 2 L12	514	ND	114	190	275	119	ND	ND	109	580	79	87	ND	2067
13	B3 O 2 L13	2632	26.1	1293	1491	1904	950	8.8	ND	750	3904	348.9	509	ND	13817
14	B3 O 2 L14	3664	17	1637	1896	2472	1185	10.33	ND	957	5019	450	626	ND	17933
14D	B3 O 2 L14D	3499	37.5	1537	1876	2463	1177	10.9	ND	954	4997	456	631	ND	17638
15	B3 O 2 L15	1050	9.3	147	259	655	152	ND	ND	138	714	87.6	97.5	ND	3309
16	B3 O 2 L16	962	8.8	433	477	625	309	ND	ND	256	1348	121.4	212	ND	4752
17	B3 O 2 L17	1695	11.5	666	759	1119	456	ND	ND	369	1914	182.7	283	ND	7455
18	B3 O 2 L18	2262	25	658	788	1268	451	ND	ND	370	1897	173.7	258	ND	8151
19	B3 O 2 L19	1766	9.9	399	860	1053	549	ND	ND	438	2324	177.8	417	ND	7994
20	B3 O 2 L20	2081	11.3	604	917	1336	545	ND	ND	436	2257	204.3	340	ND	8732
21	B3 O 2 L21	5867	15.3	374	873	1773	576	7.5	ND	517	2768	239.5	503	ND	13513

2/2 D.3-

EXHAUST FACE DATA 1/2 D.

TEST: ORGANICS # 3 | BARSTOW MCLB | D E Initials: al
DATE: 12/11/95 PM | BOOTH 3 - TESTS | Q A Initials: wdu
METHODS: NIOSH 1300 | ACUREX PROJECT 8625 | Print Date: 05/01/96

BOOTH Temperature: 73 F P Barr: 28.08 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP
1	B3 O 3 L1	8	60	1000	993	55.6
2	B3 O 3 L2	7	60	1012	998	56.1
3	B3 O 3 L3	5	60	1006	1009	56.2
4	B3 O 3 L4	42	60	1028	1030	57.4
5	B3 O 3 L5	29	60	1003	996	55.8
6	B3 O 3 L6	6	60	997	997	55.6
7	B3 O 3 L7	25	60	1005	986	55.5
8	B3 O 3 L8	12	60	997	980	55.1
9	B3 O 3 L9	2	60	1026	1035	57.5
10	B3 O 3 L10	15	60	1011	1022	56.7
11	B3 O 3 L11	39	60	1035	1025	57.5
12	B3 O 3 L12	22	60	1000	999	55.8
13	B3 O 3 L13	30	60	1025	1009	56.7
14	B3 O 3 L14	1	60	1023	1004	56.5
14D	B3 O 3 L14D	44	60	1001	999	55.8
15	B3 O 3 L15	21	60	1018	1003	56.4
16	B3 O 3 L16	36	60	1002	965	54.9
17	B3 O 3 L17	43	60	996	983	55.2
18	B3 O 3 L18	40	60	1004	977	55.3
19	B3 O 3 L19	17	60	1016	996	56.1
20	B3 O 3 L20	4	60	1001	1006	56.0
21	B3 O 3 L21	41	60	956	924	52.4
BLANK1	B3 O 3 B1					0
BLANK2	B3 O 3 B2					0

NOTE:

EXHAUST FACE DATA

TEST: ORGANICS # 3
DATE: 12/11/95 PM
METHODS: NIOSH 1300

BARSTOW MCLB
BOOTH 3 - TESTS
ACUREX PROJECT 8625

D E Initials: al
Q A Initials: wdu
Print Date: 05/01/96

GRID LOC	ACUREX Sample #	MEK (ug)	Ethyl Acetate (ug)	n-Butyl alcohol (ug)	MIBK (ug)	Toluene (ug)	Butyl Acetate (ug)	Methyl iso-amyl Keytone (ug)	PGME acetate (ug)	Ethyl benzene (ug)	Xylenes (ug)	Trimethyl benzenes (ug)	Hexyl acetate (ug)	Benzyl alcohol (ug)	Total Organics (ug)
1	B3 O 3 L1	499	7.6	17.2	19.5	61.1	24.1	ND	ND	40.4	201	16.3	17.4	ND	904
2	B3 O 3 L2	219	ND	8.7	21.2	202	19.8	ND	ND	26.5	136	ND	14.8	ND	648
3	B3 O 3 L3	288	ND	ND	ND	320	ND	ND	ND	30	153	16.5	ND	ND	808
4	B3 O 3 L4	271	ND	21.6	17.1	286	16.8	ND	ND	23.9	123	ND	13.3	ND	773
5	B3 O 3 L5	537	ND	22.2	31.3	744	32.4	ND	ND	47.8	241	11.6	30.5	ND	1698
6	B3 O 3 L6	357	ND	62.7	71	359	48.8	ND	ND	47.6	243	26.9	29.4	ND	1245
7	B3 O 3 L7	703	ND	50.8	48	415	35.2	ND	ND	37.8	193	20.8	22.6	ND	1526
8	B3 O 3 L8	585	ND	39.5	50	103	43	ND	ND	54.9	277	22.6	27.7	ND	1203
9	B3 O 3 L9	792	10	305	307	492	205	ND	ND	168	863	74.1	106	ND	3322
10	B3 O 3 L10	779	ND	243	318	593	201	ND	ND	166	838	73.1	99.3	ND	3310
11	B3 O 3 L11	393	65.8	142	409	2272	342	ND	ND	347	1794	114.1	230	ND	6109
12	B3 O 3 L12	637	ND	61.9	112	190	81.1	ND	ND	86.1	433	40.3	45.3	ND	1687
13	B3 O 3 L13	2690	11.3	1413	1462	1843	948	ND	ND	739	3816	385	476	ND	13783
14	B3 O 3 L14	3819	12	1990	2047	2703	1309	9.2	ND	1014	5207	524	587	ND	19221
14D	B3 O 3 L14D	3031	11	1732	1957	2641	1255	8.4	ND	972	5006	500	569	ND	17682
15	B3 O 3 L15	762	ND	135	142	521	92.3	ND	ND	82.7	419	30	52.6	ND	2237
16	B3 O 3 L16	1128	ND	303	431	579	290	ND	ND	241	1238	113.3	167	ND	4490
17	B3 O 3 L17	1930	7.9	872	771	1111	469	ND	ND	365	1859	196.5	244	ND	7825
18	B3 O 3 L18	2221	ND	603	909	1378	566	ND	ND	441	2263	222.8	312	ND	8916
19	B3 O 3 L19	1550	ND	460	652	811	445	ND	ND	359	1902	168.6	339	ND	6687
20	B3 O 3 L20	2255	10.9	959	1051	1418	677	ND	ND	526	2761	297.2	451	ND	10406
21	B3 O 3 L21	4781 E	ND	254	418	767	264	ND	ND	209	1071	124.8	ND	ND	7889
BLANK1	B3 O 3 B1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BLANK2	B3 O 3 B2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTE: E = Estimated Value

2/2

3.0

BARSTOW TECHNOLOGY DEMONSTRATION TESTING
COATING USAGE/VOC MASS RELEASE CALCULATIONS

D.4 1/12

BOOTH	TEST	COATING TYPE	COATING USAGE (GRAMS)	VOC CONTENT (% BY WT)	MASS SOLVENT RELEASE (GRAMS)	MASS OF C MEAS IN DUCT (GRAMS)	CLOSURE (%)
BOOTH 1	B1R1	POLY TOP	45740	26	15112	13269	114
		THINNER	3220	100			
	B1R2	POLY TOP	50440	26	16464	13144	125
		THINNER	3350	100			
	B1R3	POLY TOP	49410	26	17927	14331	125
		THINNER	5080	100			
	B1R4	POLY TOP	41670	26	14044	10431	135
		THINNER	3210	100			
	B1R5	POLY TOP	52860	26	16584	10722	155
		THINNER	2840	100			
	B1R6	POLY TOP	44590	26	13953	9957	140
		THINNER	2360	100			
BOOTH 2	B2R1	POLY TOP	32700	26	14680	7964	184
		THINNER	2660	100			
		EPOXY PRIMER	23040	9			
		ACID WASH	1680	86			
	B2R2	POLY TOP	12350	26	6934	4514	154
		THINNER	1000	100			
		EPOXY PRIMER	14200	9.0			
		ACID WASH	1680	86			
	B2R3	POLY TOP	18890	26	9279	6985	133
		THINNER	1540	100			
		EPOXY PRIMER	15360	9.0			
		ACID WASH	1680	86			
	B2R4	POLY TOP	18890	26	9451	6723	141
		THINNER	1540	100			
		EPOXY PRIMER	17270	9.0			
		ACID WASH	1680	86			
	B2R5	POLY TOP	28340	26	12219	5947	205
		THINNER	2300	100			
		EPOXY PRIMER	12290	9.0			
		ACID WASH	1680	86			
	B2R6	POLY TOP	16330	26	8818	5924	149
		THINNER	1330	100			
		EPOXY PRIMER	19970	9.0			
		ACID WASH	1680	86			
BOOTH 3	B3R1	POLY TOP	5810	26	4701	2920	161
		THINNER	470	100			
		EPOXY PRIMER	6150	9.0			
		ACID WASH	2520	86			
	B3R2	POLY TOP	4360	26	3550	2270	156
		THINNER	350	100			
		EPOXY PRIMER	6910	9.0			
		ACID WASH	1680	86			

D.4 2/2

B3R3	POLY TOP	4360	26	3121	2764	113
	THINNER	350	100			
	EPOXY PRIMER	6150	9.0			
	ACID WASH	1260	86			
B3R4	POLY TOP	4360	26	3292	2049	161
	THINNER	350	100			
	EPOXY PRIMER	8050	9.0			
	ACID WASH	1260	86			
B3R5	POLY TOP	7670	26	4073	3526	116
	THINNER	580	100			
	EPOXY PRIMER	4610	9.0			
	ACID WASH	1260	86			
B3R6	POLY TOP	7060	26	3904	2679	146
	THINNER	570	100			
	EPOXY PRIMER	4610	9.0			
	ACID WASH	1260	86			

Note: Closure is defined as mass released divided by mass measured in ducts

AVG = 195

1/6 D.4

BOOTH 1 METALS TEST 1
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 1

1/8/96 BY DU

NORTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

SOUTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 11/30/95
TIME: 1127 - 1148, 1158 - 1234, ELAPSED PAINTING TIME = 57 MIN.
PARTS: BULL DOZER, TILT-BED TRUCK

COATING: ALIPHATIC POLYURETHANE, GREEN, PRATT & LAMBERT, MIL-C-53039A AM-2, LOT 6509020
THINNER: POLYURETHANE THINER; CSD, INC.; MIL T 81772B TY1, BATCH 313

NORTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
THINNER (ADDED)	1.00			0.111	0.66	7.09	2.13
COATING (ADDED)	8.00			0.889	5.29	10.9	26.16
COATING AS APPLIED	20.75	11.75	0.75	1.00	5.95		28.29

SOUTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
THINNER (ADDED)	0.75			0.079	0.34	7.09	1.09
COATING (ADDED)	8.75			0.921	3.96	10.9	19.58
COATING AS APPLIED	25.25	18.75	0.54	1.00	4.30		20.67

2/6 D.4

BOOTH 1 METALS TEST 2
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 1

1/8/96 BY ES

NORTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

SOUTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 11/30/95
TIME: 1615 - 1645, 1655 - 1735, ELAPSED PAINTING TIME = 70 MIN.
PARTS: TRUCK, LARGER TRUCK

COATING: ALIPHATIC POLYURETHANE, GREEN, PRATT & LAMBERT, MIL-C-53039A AM-2, LOT 6509020
THINNER: POLYURETHANE THINER; CSD, INC.; MIL T 81772B TY1, BATCH 313

NORTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
THINNER (ADDED)	1.00			0.111	0.53	7.09	1.71
COATING (ADDED)	8.00			0.889	4.26	10.9	21.07
COATING AS APPLIED	11.75	4.50	0.60	1.00	4.79		22.79

SOUTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
THINNER (ADDED)	0.75			0.079	0.51	7.09	1.64
COATING (ADDED)	8.75			0.921	5.93	10.9	29.37
COATING AS APPLIED	18.75	9.00	0.81	1.00	6.44		31.00

3/6 D.4

BOOTH 1 METALS TEST3
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 1

1//96 BY DU

NORTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

SOUTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/1/95
TIME: 1101 - 1135, 1151 - 1220, ELAPSED PAINTING TIME = 63 MIN.
PARTS: TRUCK, 2 HUM-Vs

COATING: ALIPHATIC POLYURETHANE, GREEN, PRATT & LAMBERT, MIL-C-53039A AM-2, LOT 6509020
THINNER: POLYURETHANE THINER; CSD, INC.; MIL T 81772B TY1, BATCH 313

NORTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
THINNER (ADDED)	2.50			0.179	1.09	7.09	3.51
COATING (ADDED)	11.50			0.821	5.02	10.9	24.85
COATING AS APPLIED	18.50	9.25	0.77	1.00	6.11		28.36

SOUTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
THINNER (ADDED)	1.50			0.090	0.43	7.09	1.57
COATING (ADDED)	15.25			0.910	4.96	10.9	24.56
COATING AS APPLIED	26.00	17.75	0.69	1.00	5.45		26.13

4/6 D.4

BOOTH 1 ORGANICS TEST 1
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 1

1/9/96 BY DU

NORTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

SOUTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/1/95
TIME: 1528 - 1601, 1614 - 1644, ELAPSED PAINTING TIME = 63 MIN.
PARTS: TRUCK, HUM-V AND WATER BUFFALO

COATING: ALIPHATIC POLYURETHANE, GREEN, PRATT & LAMBERT, MIL-C-53039A AM-2, LOT 6509020
THINNER: POLYURETHANE THINER; CSD, INC.; MIL T 81772B TY1, BATCH 313

NORTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
THINNER (ADDED)	1.00			0.125	0.54	7.09	1.73
COATING (ADDED)	7.00			0.875	3.76	10.9	18.60
COATING AS APPLIED	17.25	10.75	0.54	1.00	4.30		20.33

SOUTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
THINNER (ADDED)	1.50			0.090	0.46	7.09	1.48
COATING (ADDED)	15.25			0.910	4.66	10.9	23.07
COATING AS APPLIED	17.75	10.00	0.65	1.00	5.12		24.55

5/6 D4

BOOTH 1 ORGANICS TEST 2
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 1

1/9/96 BY DU

NORTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

SOUTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/2/95
TIME: 0831 - 0909, 0929 - 1002, ELAPSED PAINTING TIME = 71 MIN.
PARTS: HUM-V AND 3 WATER TANKS, LARGE TRUCK

COATING: ALIPHATIC POLYURETHANE, GREEN, PRATT & LAMBERT, MIL-C-53039A AM-2, LOT 6509020
THINNER: POLYURETHANE THINER; CSD, INC.; MIL T 81772B TY1, BATCH 313

NORTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
THINNER (ADDED)	1.25			0.079	0.43	7.09	1.39
COATING (ADDED)	14.50			0.921	5.02	10.9	24.84
COATING AS APPLIED	26.25	18.00	0.69	1.00	5.45		26.23

SOUTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
THINNER (ADDED)	1.25			0.074	0.45	7.09	1.45
COATING (ADDED)	15.75			0.926	5.66	10.9	28.02
COATING AS APPLIED	26.75	17.50	0.77	1.00	6.11		29.47

BOOTH 1 ORGANICS TEST 3
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 1

6/6

D.4

1/9/96 BY DU

NORTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

SOUTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/2/95
TIME: 1222 - 1253, 1308 - 1338, ELAPSED PAINTING TIME = 61 MIN.
PARTS: ARMORED TRANSPORT, HUM-V

COATING: ALIPHATIC POLYURETHANE, GREEN, PRATT & LAMBERT, MIL-C-53039A AM-2, LOT 6509020
THINNER: POLYURETHANE THINER; CSD, INC.; MIL T 81772B TY1, BATCH 313

NORTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
THINNER (ADDED)	1.25			0.079	0.26	7.09	0.84
COATING (ADDED)	14.50			0.921	3.04	10.9	15.05
COATING AS APPLIED	18.00	13.00	0.42	1.00	3.30		15.90

SOUTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
THINNER (ADDED)	1.25			0.074	0.47	7.09	1.52
COATING (ADDED)	15.75			0.926	5.97	10.9	29.54
COATING AS APPLIED	17.50	7.75	0.81	1.00	6.44		31.06

BOOTH 2 METALS TEST 1
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 2

1/6 D.4

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/6/95
TIME: 1641 - 1713, 1713 - 1742, ELAPSED PAINTING TIME = 61 MIN.
PARTS: MISC. PARTS, PALLETS

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC.

COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A	8 PARTS
THINNER: MIL-T-81772B TYPE 1	1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
2	7.4	1.68

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	1.14	14.24	7.39
COMP B				0.077	0.29	9.4	1.22
WATER				0.615	2.29	8.35	8.66
COATING	8.50	2.88	0.47	1.00	3.71		17.27

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	3.82	10.9	18.89
THINNER				0.11	0.48	7.09	1.54
PAINT + THINNER	14.00	7.50	0.54	1.00	4.29		20.43

BOOTH 2 METALS TEST 2)
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 2

2/6 D4

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/7/95
TIME: 0949 - 1050, ELAPSED PAINTING TIME = 61 MIN.
PARTS: MISC. PARTS, PALLETS

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC.

COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A	8 PARTS
THINNER: MIL-T-81772B TYPE 1	1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
2	7.4	1.68

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.81	14.24	5.26
COMP B				0.077	0.20	9.4	0.87
WATER				0.615	1.63	8.35	6.17
COATING	7.50	3.50	0.33	1.00	2.64		12.29

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	5.73	10.9	28.34
THINNER				0.11	0.72	7.09	2.30
PAINT + THINNER	13.25	3.50	0.81	1.00	6.44		30.64

BOOTH 2 METALS TEST 3
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 2

3/6 D.4

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/7/95
TIME: 1449 - 1549, ELAPSED PAINTING TIME = 60 MIN.
PARTS: MISC. PARTS, PALLETS

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1		
	WASH SOLUTION	4 PARTS
	PHOSPHORIC ACID	1 PART
	ALCOHOL	2 PARTS
PRIMER: DEFT, INC.	COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
	COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
	WATER	8 PARTS
TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A		8 PARTS
THINNER: MIL-T-81772B TYPE 1		1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
2	7.4	1.68

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	1.32	14.24	8.54
COMP B				0.077	0.33	9.4	1.41
WATER				0.615	2.64	8.35	10.02
COATING	7.50	1.00	0.54	1.00	4.29		19.97

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	3.30	10.9	16.33
THINNER				0.11	0.41	7.09	1.33
PAINT + THINNER	9.12	3.50	0.47	1.00	3.71		17.66

BOOTH 2 ORGANICS TEST 1
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 2

4/6 D.4

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/5/95
TIME: 1239 - 1251, 1316 - 1329, 1332 - 1341, 1343 - 1400, 1409 - 1428, ELAPSED PAINTING TIME = 70 MIN.
PARTS: MISC. HANGING, PALLETS

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC.

COMP A, POLYAMIDE, MIL-P-53030, #44W0	4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W/007CA	1 PART
WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A 8 PARTS
THINNER: MIL-T-81772B TYPE 1 1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
2	7.4	1.68

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	1.52	14.24	9.86
COMP B				0.077	0.38	9.4	1.63
WATER				0.615	3.05	8.35	11.56
COATING	10.25	2.75	0.63	1.00	4.96		23.04

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	6.61	10.9	32.70
THINNER				0.11	0.83	7.09	2.66
PAINT + THINNER	20.50	9.25	0.94	1.00	7.43		35.35

5/6 D.4

BOOTH 2 ORGANICS TEST 2
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 2

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/5/95
TIME: 1716 - 1747, 1750 - 1819, ELAPSED PAINTING TIME = 60 MIN.
PARTS: MISC. HANGING, PALLETS

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC. COMP A, POLYAMIDE, MIL-P-53030, #44W0 4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CA 1 PART
WATER 8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A 8 PARTS
THINNER: MIL-T-81772B TYPE 1 1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
2	7.4	1.68

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.94	14.24	6.07
COMP B				0.077	0.23	9.4	1.00
WATER				0.615	1.88	8.35	7.12
COATING	6.12	1.50	0.39	1.00	3.05		14.20

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	2.50	10.9	12.35
THINNER				0.11	0.31	7.09	1.00
PAINT + THINNER	9.25	5.00	0.35	1.00	2.81		13.36

BOOTH 2 ORGANICS TEST 3
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 2

6/6 D.4

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/6/95
TIME: 1134 - 1147, 1149 - 1200, 1202 - 1212, 1216 - 1243, ELAPSED PAINTING TIME = 61 MIN.
PARTS: RIMS, PALLETS

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC.

COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A 8 PARTS
THINNER: MIL-T-81772B TYPE 1 1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
2	7.4	1.68

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	1.02	14.24	6.57
COMP B				0.077	0.25	9.4	1.08
WATER				0.615	2.03	8.35	7.71
COATING	9.00	4.00	0.42	1.00	3.30		15.36

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	3.82	10.9	18.89
THINNER				0.11	0.48	7.09	1.54
PAINT + THINNER	10.50	4.00	0.54	1.00	4.29		20.43

BOOTH 2 STANDARD PAINTING OPERATIONS (1 PAINTER, USUAL PROCEDURES).
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 2

EXTRA OBSERVATION D

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT (GREEN): 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

TOP COAT PAINT POT (BLACK): 9.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = .442 CU FT -6.903 E-3 -2.131 E-3 = 0.433 CU FT

DATE: 12/12/95
TIME: 0819 - 1030
PARTS: TIRES, ENGINE GRILLS, BATTERY BOXES, OUT-RIGGERS

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC.

COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A 8 PARTS
THINNER: MIL-T-81772B TYPE 1 1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
3	7.4	2.52

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.30	14.24	1.97
COMP B				0.077	0.08	9.4	0.33
WATER				0.615	0.61	8.35	2.31
COATING	8.50	7.00	0.13	1.00	0.99		4.61

TOPCOAT (GREEN)

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	1.47	10.9	7.27
THINNER				0.11	0.18	7.09	0.59
PAINT + THINNER	10.00	7.50	0.21	1.00	1.65		7.86

TOPCOAT (BLACK)

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	0.66	10.9	3.26
THINNER				0.11	0.08	7.09	0.27
PAINT + THINNER	7.50	4.75	0.23	1.00	0.74		3.53

BOOTH 3 METALS TEST 1
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 3

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/8/95
TIME: 1055 - 1105, 1119 - 1224, ELAPSED PAINTING TIME = 75 MIN.
PARTS: BUCKETS ON 3 FT PAINTING TABLE

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC.

COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A 8 PARTS
THINNER: MIL-T-81772B TYPE 1 1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
3	7.4	2.52

NOTE: CONSOLE POWER FAILURE OCCURRED. TRAINS ONLY SAMPLED DURING APPLICATION OF 2 QTS ACID WASH

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.41	14.24	2.63
COMP B				0.077	0.10	9.4	0.43
WATER				0.615	0.81	8.35	3.08
COATING	6.50	4.50	0.17	1.00	1.32		6.15

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	1.17	10.9	5.81
THINNER				0.11	0.15	7.09	0.47
PAINT + THINNER	6.50	4.50	0.17	1.00	1.32		6.29

BOOTH 3 METALS TEST 2
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 3

2/6 D

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/8/95
TIME: 1608 - 1715, ELAPSED PAINTING TIME = 67 MIN.
PARTS: BUCKETS ON 3 FT PAINTING TABLE

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1		
	WASH SOLUTION	4 PARTS
	PHOSPHORIC ACID	1 PART
	ALCOHOL	2 PARTS
PRIMER: DEFT, INC.	COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
	COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
	WATER	8 PARTS
TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A		8 PARTS
THINNER: MIL-T-81772B TYPE 1		1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
2	7.4	1.68

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.46	14.24	2.96
COMP B				0.077	0.11	9.4	0.49
WATER				0.615	0.91	8.35	3.47
COATING	4.50	2.25	0.19	1.00	1.49		6.91

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	0.88	10.9	4.36
THINNER				0.11	0.11	7.09	0.35
PAINT + THINNER	4.50	3.00	0.13	1.00	0.99		4.71

BOOTH 3 METALS TEST3
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 3

3/6

D.4

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/9/95
TIME: 1020 - 1124, ELAPSED PAINTING TIME = 64 MIN.
PARTS: BUCKETS ON 3 FT PAINTING TABLE

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC.

COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A	8 PARTS
THINNER: MIL-T-81772B TYPE 1	1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
1.5	7.4	1.26

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.41	14.24	2.63
COMP B				0.077	0.10	9.4	0.43
WATER				0.615	0.81	8.35	3.08
COATING	6.25	4.25	0.17	1.00	1.32		6.15

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	0.88	10.9	4.36
THINNER				0.11	0.11	7.09	0.35
PAINT + THINNER	9.00	7.50	0.13	1.00	0.99		4.71

BOOTH 3 ORGANICS TEST 1
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 3

4/6 : D4

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/9/95
TIME: 1458 - 1600, ELAPSED PAINTING TIME = 62 MIN.
PARTS: BUCKETS ON 3 FT PAINTING TABLE

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC.

COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A	8 PARTS
THINNER: MIL-T-81772B TYPE 1	1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
1.5	7.4	1.26

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.53	14.24	3.44
COMP B				0.077	0.13	9.4	0.57
WATER				0.615	1.07	8.35	4.04
COATING	4.50	1.88	0.22	1.00	1.73		8.05

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	0.88	10.9	4.36
THINNER				0.11	0.11	7.09	0.35
PAINT + THINNER	7.50	6.00	0.13	1.00	0.99		4.71

BOOTH 3 ORGANICS TEST 2
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 3

5/6 D.4

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/11/95
TIME: 1123 - 1223, ELAPSED PAINTING TIME = 60 MIN.
PARTS: BUCKETS ON 3 FT PAINTING TABLE

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC. COMP A, POLYAMIDE, MIL-P-53030, #44W007 — 4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CAT — 1 PART
WATER — 8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A — 8 PARTS
THINNER: MIL-T-81772B TYPE 1 — 1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
1.5	7.4	1.26

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.30	14.24	1.97
COMP B				0.077	0.08	9.4	0.33
WATER				0.615	0.61	8.35	2.31
COATING	5.00	3.50	0.13	1.00	0.99		4.61

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	1.43	10.9	7.09
THINNER				0.11	0.18	7.09	0.58
PAINT + THINNER	7.12	4.68	0.20	1.00	1.61		7.67

BOOTH 3 ORGANICS TEST3
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 3

6/6 DL

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/11/95
TIME: 1700 - 1800, ELAPSED PAINTING TIME = 60 MIN.
PARTS: BUCKETS ON 3 FT PAINTING TABLE

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC.

COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A	8 PARTS
THINNER: MIL-T-81772B TYPE 1	1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
1.5	7.4	1.26

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.30	14.24	1.97
COMP B				0.077	0.08	9.4	0.33
WATER				0.615	0.61	8.35	2.31
COATING	3.50	2.00	0.13	1.00	0.99		4.61

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	1.43	10.9	7.06
THINNER				0.11	0.18	7.09	0.57
PAINT + THINNER	4.68	2.25	0.20	1.00	1.61		7.64

BOOTH 1 BASELINE TEST 1
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 1

NON-RECIRCULATING CONDITIONS

1/3

D4

1/8/96 BY DU

NORTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

SOUTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 11/29/95
TIME: 1031-1057, 1104-1140, ELAPSED PAINTING TIME = 62 MIN.
PARTS: TRUCK, 2 HUM-Vs

COATING: ALIPHATIC POLYURETHANE, GREEN, PRATT & LAMBERT, MIL-C-53039A AM-2, LOT 6509020
THINNER: POLYURETHANE THINER; CSD, INC.; MIL T 81772B TY1, BATCH 313

NORTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kg)
THINNER (ADDED)	1.50			0.097	0.43	7.09	1.39
COATING (ADDED)	14.00			0.903	4.03	10.9	19.94
COATING AS APPLIED	24.50	17.75	0.56	1.00	4.46		21.33

SOUTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kg)
THINNER (ADDED)	1.50			0.088	0.48	7.09	1.55
COATING (ADDED)	15.50			0.912	4.97	10.9	24.60
COATING AS APPLIED	28.00	19.75	0.69	1.00	5.45		26.15

NON-RECIRCULATING CONDITIONS

2/3 D.4

BOOTH 1 BASELINE TEST 2
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 1

1/8/96 BY DU

NORTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

SOUTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 11/29/95
TIME: 1326 - 1354,1410-1436, ELAPSED PAINTING TIME = 54 MIN.
PARTS: TRUCK, ARMORED TRANSPORT

COATING: ALIPHATIC POLYURETHANE, GREEN, PRATT & LAMBERT, MIL-C-53039A AM-2, LOT 6509020
THINNER: POLYURETHANE THINER; CSD, INC.; MIL T 81772B TY1, BATCH 313

NORTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (KG)
THINNER (ADDED)	1.50			0.097	0.51	7.09	1.65
COATING (ADDED)	14.00			0.903	4.77	10.9	23.63
COATING AS APPLIED	17.75	9.75	0.67	1.00	5.29		25.28

SOUTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (KG)
THINNER (ADDED)	1.50			0.088	0.42	7.09	1.36
COATING (ADDED)	15.50			0.912	4.37	10.9	21.62
COATING AS APPLIED	19.75	12.50	0.60	1.00	4.79		22.98

BOOTH 1 BASELINE TEST 3
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 1

NON RECIRCULATING DA
CONDITIONS

3/3

1/8/96 BY DU

NORTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

SOUTH PAINT POT: 14 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT - 6.90 E-3 CU FT -2.13 E-3 C 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 11/29/95
TIME: 1816 - 1853, ELAPSED PAINTING TIME = 37 MIN.
PARTS: 2 HARD-TOP HUM-Vs

COATING: ALIPHATIC POLYURETHANE, GREEN, PRATT & LAMBERT, MIL-C-53039A AM-2, LOT 6509020
THINNER: POLYURETHANE THINER; CSD, INC.; MIL T 81772B TY1, BATCH 313

NORTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (KG)
THINNER (ADDED)	1.50			0.176	0.76	7.09	2.44
COATING (ADDED)	7.00			0.824	3.54	10.9	17.50
COATING AS APPLIED	18.25	11.75	0.54	1.00	4.30		19.94

SOUTH PAINT POT:

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (KG)
THINNER (ADDED)	1.75			0.189	0.75	7.09	2.41
COATING (ADDED)	7.50			0.811	3.21	10.9	15.91
COATING AS APPLIED	21.75	15.75	0.50	1.00	3.96		18.32

BOOTH 2 BASELINE TEST 1
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 2

NON RECIRC CONDITIONS

D.1

1/3

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 9.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 0.442 CU FT -6.90 E-3 -2.13 E-3 = 0.433 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/4/95
TIME: 1259 - 1310, 1330 - 1348, 1352 - 1419, ELAPSED PAINTING TIME = 56 MIN.
PARTS: MISC. HANGING

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

	WASH SOLUTION	4 PARTS
	PHOSPHORIC ACID	1 PART
	ALCOHOL	2 PARTS
PRIMER: DEFT, INC.	COMP A, POLYAMIDE, MIL-P-53030, #44W0	4 PARTS
	COMP B, EPOXY, MIL-P-53030, #44W007CA	1 PART
	WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A 8 PARTS
THINNER: MIL-T-81772B TYPE 1 1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
3	7.4	2.52

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.25	14.24	1.61
COMP B				0.077	0.06	9.4	0.27
WATER				0.615	0.50	8.35	1.89
COATING	7.00	4.00	0.25	1.00	0.81		3.76

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	4.11	10.9	20.34
THINNER				0.11	0.51	7.09	1.65
PAINT + THINNER	8.50	1.50	0.58	1.00	4.63		22.00

BOOTH 2 BASELINE TEST 2
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 2

NON-RECIRC CONDITIONS P 2/3

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 9.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 0.442 CU FT -6.90 E-3 -2.13 E-3 = 0.433 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/4/95
TIME: 1514 - 1528, 1533 - 1544, 1548 - 1615, ELAPSED PAINTING TIME = 52 MIN.
PARTS: MISC. HANGING, PALLETS

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC.

COMP A, POLYAMIDE, MIL-P-53030, #44W0	4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CA	1 PART
WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A 8 PARTS
THINNER: MIL-T-81772B TYPE 1 1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
3	7.4	2.52

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.29	14.24	1.88
COMP B				0.077	0.07	9.4	0.31
WATER				0.615	0.58	8.35	2.20
COATING	4.00	0.50	0.29	1.00	0.94		4.39

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	8.66	10.9	42.87
THINNER				0.11	1.08	7.09	3.49
PAINT + THINNER	15.25	0.50	1.23	1.00	9.75		46.35

BOOTH 2 BASELINE TEST 3
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 2

NON-REURC CONDITIONS D
3/3

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/11/95
TIME: 0907 - 0917, 0920 - 0940, 0945 - 0952, 0957 - 1020, ELAPSED PAINTING TIME = 60 MIN.
PARTS: MISC. PARTS, PALLETS

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

	WASH SOLUTION	4 PARTS
	PHOSPHORIC ACID	1 PART
	ALCOHOL	2 PARTS
PRIMER: DEFT, INC.	COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
	COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
	WATER	8 PARTS
TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A		8 PARTS
THINNER: MIL-T-81772B TYPE 1		1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
3	7.4	2.52

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.97	14.24	6.24
COMP B				0.077	0.24	9.4	1.03
WATER				0.615	1.93	8.35	7.32
COATING	9.75	5.00	0.40	1.00	3.14		14.59

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	4.63	10.9	22.90
THINNER				0.11	0.58	7.09	1.86
PAINT + THINNER	10.88	3.00	0.66	1.00	5.21		24.76

BOOTH 3 BASELINE TEST 1
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 3

non-recirc conditions

1/3 D4

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/9/95
TIME: 1715 - 1815, ELAPSED PAINTING TIME = 60 MIN.
PARTS: BUCKETS ON 3 FT PAINTING TABLE

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC.

COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A 8 PARTS
THINNER: MIL-T-81772B TYPE 1 1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
1.5	7.4	1.26

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.18	14.24	1.16
COMP B				0.077	0.04	9.4	0.19
WATER				0.615	0.36	8.35	1.36
COATING	1.88	1.00	0.07	1.00	0.58		2.70

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	1.32	10.9	6.54
THINNER				0.11	0.17	7.09	0.53
PAINT + THINNER	6.00	3.75	0.19	1.00	1.49		7.07

BOOTH 3 BASELINE TEST 2
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 3

NON-RELRC CONDITIONS 43 DO

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/12/95
TIME: 1141 - 1241, ELAPSED PAINTING TIME = 60 MIN.
PARTS: BUCKETS ON 3 FT PAINTING TABLE

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC.

COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A	8 PARTS
THINNER: MIL-T-81772B TYPE 1	1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
1.5	7.4	1.26

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.27	14.24	1.73
COMP B				0.077	0.07	9.4	0.29
WATER				0.615	0.54	8.35	2.03
COATING	7.00	5.68	0.11	1.00	0.87		4.06

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	1.40	10.9	6.92
THINNER				0.11	0.17	7.09	0.56
PAINT + THINNER	7.50	5.12	0.20	1.00	1.57		7.48

BOOTH 3 BASELINE TEST 3
PAINT USAGE CALCULATION WORKSHEET
USMCLB YERMO ANNEX, BOOTH 3

Non-Reuse Conditions

3/3

1/9/96 BY WDU

ACID WASH PAINT POT: VOLUME = 1 QUART

PRIMER PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.90 E-3 -2.13 E-3 = 1.06 CU FT

TOP COAT PAINT POT: 14.0 IN DIA. W/1.125 IN DIA. INTAKE, AND .625 IN DIA. MIXER.
SURFACE AREA OF PAINT = 1.07 CU FT -6.903 E-3 -2.131 E-3 = 1.06 CU FT

VOLUME OF PAINT = SURFACE AREA x (HEIGHT 1 - HEIGHT 2)

DATE: 12/12/95
TIME: 1310 - 1410, ELAPSED PAINTING TIME = 60 MIN.
PARTS: BUCKETS ON 3 FT PAINTING TABLE

ACID WASH: PRATT & LAMBERT, DOD-P-15328D AM 1

WASH SOLUTION	4 PARTS
PHOSPHORIC ACID	1 PART
ALCOHOL	2 PARTS

PRIMER: DEFT, INC. COMP A, POLYAMIDE, MIL-P-53030, #44W007

COMP A, POLYAMIDE, MIL-P-53030, #44W007	4 PARTS
COMP B, EPOXY, MIL-P-53030, #44W007CAT	1 PART
WATER	8 PARTS

TOP COAT: POLYURETHANE TOP COAT, 383 CARC GREEN, MIL-C-53039A 8 PARTS
THINNER: MIL-T-81772B TYPE 1 1 PART

ACID WASH

USAGE VOLUME (QT)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
1.25	7.4	1.05

PRIMER

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
COMP A				0.308	0.34	14.24	2.21
COMP B				0.077	0.09	9.4	0.36
WATER				0.615	0.68	8.35	2.59
COATING	5.68	4.00	0.14	1.00	1.11		5.16

TOPCOAT

	INITIAL HEIGHT (IN)	FINAL HEIGHT (IN)	DELTA HEIGHT (FT)	VOLUME FRACTION (%)	USAGE VOLUME (GAL)	DENSITY (LBS/GAL)	USAGE MASS (kGr)
PAINT				0.89	0.51	10.9	2.53
THINNER				0.11	0.06	7.09	0.21
PAINT + THINNER	5.12	4.25	0.07	1.00	0.57		2.73

BOOTH 1
BOOTH 2
BOOTH 3

PAINTER DATA

1/1 5.5

TEST:METALS
DATE:NA
METHOD:NIOSH 7300

BARSTOW MCLB
PAINTER - TESTS
ACUREX PROJECT 8628

D E Initials: wdu
Q A Initials: wdu
Print Date: 01/05/96

ACUREX Sample #	BOOTH TEMP (deg F)	BAROM PRESS (in Hg)	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	TOTAL CHROME (ug)	TOTAL CHROME (mg/M3)	ZINC (ug)	ZINC (mg/M^3)
B1M1P1BAS	65	28.3	40	62	2998	2873	173	11.2	6.5E-02	NA	NA
B1M1P2BAS	65	28.3	45	62	3030	2821	173	4.8	2.8E-02	NA	NA
B1M2P1BAS	68	28.3	40	54	2987	3035	154	15.0	9.8E-02	NA	NA
B1M2P2BAS	68	28.3	45	54	3004	3017	154	1.66	1.1E-02	NA	NA
B1M2P2BASD	68	28.3	34	54	3054	3037	156	1.74	1.1E-02	NA	NA
B1M3P1BAS	63	28.3	34	37	3037	3064	108	6.29	5.8E-02	NA	NA
B1M3P2BAS	63	28.3	40	37	3035	3020	107	0.966	9.0E-03	NA	NA
								Average:	4.0E-02		
B1M1P1	68	28.2	34	57	3068	3047	164	0.979	6.0E-03	NA	NA
B1M1P1D	68	28.2	31	57	2987	2908	158	3.06	1.9E-02	NA	NA
B1M1P2	68	28.2	45	57	3000	2796	156	5.44	3.5E-02	NA	NA
B1M2P1	68	28.2	34	70	3047	3051	201	7.47	3.7E-02	NA	NA
B1M2P2	68	28.2	45	70	3020	3060	201	2.69	1.3E-02	NA	NA
B1M3P1	64	28.0	34	63	3018	3042	180	0.646	3.6E-03	NA	NA
B1M3P1D	64	28.0	31	63	3020	3059	181	2.57	1.4E-02	NA	NA
B1M3P2	64	28.0	45	63	3002	3025	179	8.59	4.8E-02	NA	NA
								Average:	2.2E-02		
B2M1P1BAS	87	28.0	40	56	3008	2900	149	1.04	7.0E-03	23.1	1.5E-01
B2M1P1BASD	87	28.0	28	56	3005	2922	150	1.49	9.9E-03	44.8	3.0E-01
B2M1P2BAS	87	28.0	45	56	3002	2903	149	1.26	8.4E-03	13.0	8.7E-02
B2M2P1BAS	87	28.0	40	52	2995	2980	140	1.53	1.1E-02	113	8.1E-01
B2M2P2BAS	87	28.0	45	52	3003	2913	139	1.28	9.2E-03	3.34	2.4E-02
B2M3P1BAS	70	28.1	11	60	3004	2938	167	ND	2.4E-03	2.72	1.6E-02
B2M3P2BAS	70	28.1	34	60	3012	3044	170	0.648	3.8E-03	2.06	1.2E-02
								Average:	7.4E-03		2.0E-01
B2M1P1	78	28.2	35	61	3005	2997	169	ND	2.4E-03	77.1	4.6E-01
B2M1P1D	78	28.2	41	61	3000	2918	167	ND	2.4E-03	12.0	7.2E-02
B2M1P2	78	28.2	11	61	3000	2948	168	1.60	9.5E-03	13.1	7.8E-02
B2M2P1	74	28.0	35	61	3011	3005	170	0.797	4.7E-03	132	7.8E-01
B2M2P2	74	28.0	11	61	3000	3022	170	3.71	2.2E-02	20.3	1.2E-01
B2M2P2D	74	28.0	41	61	3006	3000	170	0.742	4.4E-03	0.679	4.0E-03
B2M3P1	74	28.0	35	60	3005	3000	167	ND	2.4E-03	93.9	5.6E-01
B2M3P2	74	28.0	11	60	3022	2992	167	0.449	2.7E-03	2.46	1.5E-02
								Average:	6.3E-03		2.6E-01
B3M1P1BAS	75	28.2	35	60	2987	2974	166	4.52	2.7E-02	57.8	3.5E-01
B3M1P1BASD	75	28.2	5	60	3020	2998	168	6.27	3.7E-02	63.8	3.8E-01
B3M2P1BAS	78	28.0	17	60	2950	2850	160	1.25	7.8E-03	17.8	1.1E-01
B3M3P1BAS	77	28.0	17	60	2850	2879	158	3.14	2.0E-02	35.6	2.3E-01
								Average:	2.3E-02		2.7E-01
B3M1P1	71	28.1	40	75	3000	2965	209	5.64	2.7E-02	32.2	1.5E-01
B3M1P1D	71	28.1	39	75	3009	3023	211	ND	1.9E-03	0.634	3.0E-03
B3M2P1	77	28.1	40	67	3002	3006	186	0.691	3.7E-03	15.5	8.3E-02
B3M3P1	69	28.2	40	64	2999	3050	182	0.773	4.2E-03	23.0	1.3E-01
								Average:	9.2E-03		9.2E-02

EXHAUST FACE DATA

TEST: METALS #1
DATE: 11/30/95 AM
METHOD: NIOSH 7300

BARSTOW MCLB
BOOTH 1 - TESTS
ACUREX PROJECT 8628

D E Initials: al
Q A Initials: wdu
Print Date: 01/04/96

BOOTH Temperature: 68 F P Barr: 28.2 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	TOTAL CHROME (ug)	TOTAL CHROME (mg/M3)
1	B1M1L1	26	57	3007	3007	162	ND	2.5E-03
2	B1M1L2	47	57	3050	3938	188	2.94	1.6E-02
3	B1M1L3	13	57	3021	3040	163	4.04	2.5E-02
4	B1M1L4	27	57	3000	3027	162	17.9	1.1E-01
5	B1M1L5	43	57	3048	3087	165	2.72	1.7E-02
6	B1M1L6	14	57	3011	3035	162	3.94	2.4E-02
7	B1M1L7	22	57	3012	3024	162	1.15	7.1E-03
8	B1M1L8	15	57	3008	3050	163	11.5	7.1E-02
8D	B1M1L8D	30	57	3031	3012	162	13.5	8.3E-02
9	B1M1L9	25	57	3019	3030	162	9.72	6.0E-02
10	B1M1L10	9	57	3021	3044	163	6.21	3.8E-02
11	B1M1L11	16	57	3031	2973	161	1.73	1.1E-02
12	B1M1L12	10	57	3034	3044	163	17.9	1.1E-01
13	B1M1L13	17	57	3030	3056	163	13.2	8.1E-02
14	B1M1L14	37	57	3021	2969	161	10.1	6.3E-02
15	* B1M1L15	19	57	3000	3000	161	9.79	6.1E-02
16	B1M1L16	24	57	3023	3033	163	8.08	5.0E-02
17	B1M1L17	11	57	3022	3053	163	2.29	1.4E-02
18	B1M1L18	38	57	3025	2996	162	2.86	1.8E-02
19	B1M1L19	12	57	3000	2989	161	ND	2.5E-03
20	B1M1L20	51	57	3009	2972	161	0.998	6.2E-03
21	B1M1L21	8	57	3045	3059	164	5.48	3.3E-02
22	B1M1L22	49	57	3040	2912	160	11.4	7.1E-02
23	B1M1L23	2	57	3018	3023	162	1.80	1.1E-02
24	B1M1L24	3	57	3025	3112	165	1.90	1.2E-02
25	B1M1L25	5	57	3026	3055	163	7.10	4.3E-02
26	B1M1L26	23	57	3026	2985	161	6.57	4.1E-02
27	B1M1L27	33	57	3023	3028	163	7.27	4.5E-02
28	B1M1L28	48	57	3006	2869	158	9.89	6.3E-02
29	B1M1L29	6	57	3037	3036	163	8.59	5.3E-02
30	B1M1L30	18	57	3021	3044	163	8.32	5.1E-02
31	B1M1L31	42	57	3000	2996	161	8.28	5.1E-02
31D	B1M1L31D	29	57	3011	3349	171	7.23	4.2E-02
32	B1M1L32	1	57	3011	3169	166	22.4	1.3E-01
33	B1M1L33	44	57	2997	2973	160	1.11	6.9E-03
34	B1M1L34	4	57	3007	3009	162	15.8	9.8E-02
35	B1M1L35	55	57	3015	2929	160	3.62	2.3E-02
36	B1M1L36	7	57	3031	3087	164	6.78	4.1E-02

* Pump off at end of test

MDL = 0.4 ug

EXHAUST FACE DATA 1/1 - D

TEST: METALS # 2
DATE: 11/30/95 PM
METHOD: NIOSH 7300

BARSTOW MCLB
BOOTH 1 - TESTS
ACUREX PROJECT 8628

D E Initials: al
Q A Initials: wdu
Print Date: 01/04/96

BOOTH Temperature: 68 F P Barr: 28.2 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	TOTAL CHROME (ug)	TOTAL CHROME (mg/M3)
1	B1M2L1	51	70	2995	2962	197	1.18	6.0E-03
2	B1M2L2	14	70	3035	2975	198	ND	2.0E-03
3	B1M2L3	55	70	3023	2996	199	ND	2.0E-03
4	B1M2L4	38	70	2996	2955	196	1.16	5.9E-03
5	B1M2L5	24	70	3033	2974	198	1.79	9.0E-03
6	B1M1L6	49	70	2990	2990	197	1.51	7.7E-03
7	B1M2L7	27	70	3027	2963	198	2.40	1.2E-02
8	B1M2L8	3	70	3022	3042	200	5.53	2.8E-02
8D	B1M2L8D	1	70	3003	2962	197	2.49	1.3E-02
9	B1M2L9	17	70	3056	3022	201	0.809	4.0E-03
10	B1M2L10	22	70	3024	2980	198	0.787	4.0E-03
11	B1M2L11	29	70	2995	2996	198	1.07	5.4E-03
12	B1M2L12	25	70	3030	3004	199	4.10	2.1E-02
13	B1M2L13	7	70	3020	2964	197	ND	2.0E-03
14	B1M2L14	48	70	2985	2978	197	1.19	6.0E-03
15	B1M2L15	10	70	3044	3009	200	0.767	3.8E-03
16	B1M2L16	47	70	2991	2972	197	1.65	8.4E-03
17	B1M2L17	9	70	3044	3000	199	ND	2.0E-03
18	B1M2L18	15	70	3050	3020	200	0.798	4.0E-03
19	B1M2L19	33	70	3028	3017	199	ND	2.0E-03
20	B1M2L20	12	70	2989	2979	197	ND	2.0E-03
21	B1M2L21	43	70	2997	2966	197	0.942	4.8E-03
22	B1M2L22	2	70	3023	3012	199	1.18	5.9E-03
23	B1M2L23	37	70	2969	2990	197	1.19	6.1E-03
24	* B1M2L24	5	70	3055	3040	201	ND	2.0E-03
25	B1M2L25	13	70	3040	2964	198	3.51	1.8E-02
26	B1M2L26	30	70	3012	2991	198	5.10	2.6E-02
27	B1M2L27	18	70	3044	2953	198	2.03	1.0E-02
28	B1M2L28	44	70	2973	2975	196	6.25	3.2E-02
29	B1M2L29	26	70	3007	2947	196	4.07	2.1E-02
30	B1M2L30	42	70	2996	2960	196	4.04	2.1E-02
31	B1M2L31	16	70	2973	2886	193	1.93	1.0E-02
31D	B1M2L31D	11	70	3053	2995	200	1.99	1.0E-02
32	B1M2L32	8	70	3059	3040	201	2.65	1.3E-02
33	B1M2L33	4	70	3009	2991	198	2.65	1.3E-02
34	* B1M2L34	19	70	3000	2945	196	ND	2.0E-03
35	B1M2L35	6	70	3036	3028	200	ND	2.0E-03
36	B1M2L36	23	70	2985	2963	196	ND	2.0E-03
N. BLANK	B1M2NB						ND	
S. BLANK	B1M2SB						ND	

* Pump off at end of run

MDL = 0.4 ug

EXHAUST FACE DATA 4/1

TEST: METALS #3
DATE: 12/01/95 AM
METHOD: NIOSH 7300

BARSTOW MCLB
BOOTH 1 - TESTS
~~ACUREX PROJECT 8628~~

D E Initials: al
Q A Initials: wdu
Print Date: 01/04/96

BOOTH Temperature: 64 F P Barr: 27.98 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	TOTAL CHROME (ug)	TOTAL CHROME (mg/M3)
1	B1M3L1	29	63	3002	2975	177	0.964	5.4E-03
2	B1M3L2	16	63	3023	3080	181	ND	2.2E-03
3	B1M3L3	10	63	3016	2989	178	ND	2.2E-03
4	B1M3L4	43	63	3020	2988	178	1.77	9.9E-03
5	* B1M3L5	24	63	3013	3009	179	ND	2.2E-03
6	B1M3L6	7	63	3005	3016	179	8.10	4.5E-02
7	B1M3L7	2	63	3017	2991	178	0.960	5.4E-03
8	B1M3L8	11	63	3009	2986	178	2.07	1.2E-02
8D	B1M3L8D	14	63	3017	2994	178	3.42	1.9E-02
9	B1M3L9	12	63	3012	3000	178	12.8	7.2E-02
10	B1M3L10	37	63	3008	2951	177	4.80	2.7E-02
11	B1M3L11	17	63	3005	2980	178	1.76	9.9E-03
12	B1M3L12	1	63	2996	2976	177	4.56	2.6E-02
13	* B1M3L13	19	63	3007	3004	178	ND	2.2E-03
14	B1M3L14	8	63	3000	2980	178	4.60	2.6E-02
15	B1M3L15	21	63	3008	2930	176	2.87	1.6E-02
16	B1M3L16	5	63	3000	2990	178	3.06	1.7E-02
17	B1M3L17	44	63	2996	2982	177	6.07	3.4E-02
18	* B1M3L18	41	63	3000	3000	178	ND	2.2E-03
19	B1M3L19	51	63	3004	2996	178	2.79	1.6E-02
20	B1M3L20	22	63	3000	2998	178	ND	2.2E-03
21	B1M3L21	3	63	3014	2940	177	1.45	8.2E-03
22	B1M3L22	4	63	3003	2992	178	3.94	2.2E-02
23	B1M3L23	33	63	3005	2981	178	3.35	1.9E-02
24	B1M3L24	9	63	3004	3003	178	2.29	1.3E-02
25	B1M3L25	6	63	3020	3044	180	1.16	6.4E-03
26	B1M3L26	15	63	3009	3006	179	2.31	1.3E-02
27	B1M3L27	46	63	3011	2937	177	15.9	9.0E-02
28	B1M3L28	27	63	3013	3039	180	5.32	3.0E-02
29	B1M3L29	47	63	3015	3023	179	2.79	1.6E-02
30	B1M3L30	18	63	3009	3007	179	6.36	3.6E-02
31	B1M3L31	52	63	2995	3026	179	3.89	2.2E-02
31D	B1M3L31D	38	63	3012	2977	178	5.57	3.1E-02
32	B1M3L32	25	63	3014	2990	178	7.62	4.3E-02
33	B1M3L33	42	63	3005	3011	179	5.92	3.3E-02
34	B1M3L34	13	63	3000	3025	179	2.44	1.4E-02
35	B1M3L35	55	63	3013	3018	179	1.17	6.5E-03
36	B1M3L36	26	63	3014	2960	177	0.908	5.1E-03
N. BLANK	B1M3NB						ND	
S. BLANK	B1M3SB						ND	

* Pump off at end of run

MDL = 0.4 ug

EXHAUST FACE DATA

4/1 D.S

TEST: METALS # 1
DATE: 12/06/95 PM
ETHOD: NIOSH 7300

~~BARSTOW MCLB~~
BOOTH 2 - TESTS
ACUREX PROJECT 8628

D E Initials: al
Q A Initials: wdu
Print Date: 01/04/96

BOOTH Temperature: 78 F P Barr: 28.20 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	TOTAL CHROME (ug)	TOTAL CHROME (mg/M3)	ZINC (ug)	ZINC (mg/M^3)
1	B2M1L1	15	61	3008	2915	167	4.75	2.8E-02	78.7	4.7E-01
2	B2M1L2	7	61	3019	3004	170	2.02	1.2E-02	63.9	3.8E-01
3	B2M1L3	10	61	3012	2950	168	1.39	8.3E-03	78.2	4.6E-01
4	B2M1L4	28	61	3000	2969	168	1.10	6.5E-03	122	7.2E-01
5	B2M1L5	5	61	3003	2977	169	1.57	9.3E-03	64.0	3.8E-01
6	B2M1L6	44	61	3010	2960	168	2.60	1.5E-02	63.3	3.8E-01
7	B2M1L7	2	61	3014	2926	168	2.23	1.3E-02	237	1.4E+00
8	B2M1L8	33	61	2997	2950	168	5.94	3.5E-02	139	8.3E-01
9	B2M1L9	20	61	3005	2987	169	1.24	7.3E-03	148	8.8E-01
10	B2M1L10	23	61	2998	2930	167	2.27	1.4E-02	95.3	5.7E-01
11	B2M1L11	43	61	3000	2955	168	3.61	2.1E-02	452	2.7E+00
11D	B2M1L11D	6	61	2998	2960	168	3.98	2.4E-02	469	2.8E+00
12	B2M1L12	25	61	3003	2972	169	5.65	3.4E-02	429	2.5E+00
13	B2M1L13	3	61	3006	2944	168	3.81	2.3E-02	616	3.7E+00
14	B2M1L14	51	61	3009	2930	168	1.74	1.0E-02	261	1.6E+00
15	B2M1L15	54	61	3005	2950	168	3.06	1.8E-02	205	1.2E+00
16	B2M1L16	42	61	3003	2990	169	7.04	4.2E-02	205	1.2E+00
17	B2M1L17	9	61	3005	2945	168	8.91	5.3E-02	1170	7.0E+00
18	B2M1L18	38	61	3003	2950	168	5.82	3.5E-02	904	5.4E+00
19	B2M1L19	14	61	3000	2955	168	6.63	3.9E-02	1200	7.1E+00
19D	B2M1L19D	4	61	3008	2930	168	5.70	3.4E-02	633	3.8E+00
20	B2M1L20	18	61	3006	2964	168	3.23	1.9E-02	274	1.6E+00
21	B2M1L21	13	61	3016	2965	169	6.80	4.0E-02	441	2.6E+00
22	B2M1L22	26	61	2998	2964	168	6.94	4.1E-02	629	3.7E+00
23	B2M1L23	17	61	3007	2970	169	2.92	1.7E-02	586	3.5E+00
24	B2M1L24	24	61	3004	2914	167	6.37	3.8E-02	1230	7.4E+00
25	B2M1L25	32	61	3000	2942	168	ND	2.4E-03	213	1.3E+00
26	B2M1L26	22	61	3021	2982	169	7.58	4.5E-02	442	2.6E+00
27	B2M1L27	12	61	2999	2973	168	7.22	4.3E-02	998	5.9E+00
28	B2M1L28	8	61	2997	2940	167	4.90	2.9E-02	1730	1.0E+01
29	B2M1L29	27	61	2996	2982	169	4.80	2.8E-02	1250	7.4E+00
30	B2M1L30	30	61	3000	2927	167	ND	2.4E-03	1.57	9.4E-03
BLANK	B2M1B						ND		ND	

MDL = 0.4 ug MDL = 0.4 ug

EXHAUST FACE DATA 1/1 D.S

TEST: METALS #2
DATE: 12/07/95 AM
ETHOD: NIOSH 7300

BARSTOW MCLB
BOOTH 2 - TESTS
ACUREX PROJECT 8628

D E Initials: al
Q A Initials: wdu
Print Date: 01/04/96

BOOTH Temperature: 74 F P Barr: 27.98 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	TOTAL CHROME (ug)	TOTAL CHROME (mg/M3)	ZINC (ug)	ZINC (mg/M^3)
1	B2M2L1	18	61	3000	3013	170	2.32	1.4E-02	45.0	2.7E-01
2	B2M2L2	42	61	3003	3015	170	2.05	1.2E-02	42.8	2.5E-01
3	B2M2L3	20	61	3000	3045	170	2.81	1.6E-02	67.9	4.0E-01
4	B2M2L4	3	61	3007	3032	170	1.90	1.1E-02	73.9	4.3E-01
5	B2M2L5	22	61	3005	3026	170	1.92	1.1E-02	53.2	3.1E-01
6	B2M2L6	7	61	3017	3008	170	1.88	1.1E-02	37.3	2.2E-01
7	B2M2L7	37	61	3013	3043	171	1.48	8.7E-03	169	9.9E-01
8	B2M2L8	8	61	3016	3038	171	6.12	3.6E-02	148	8.7E-01
9	B2M2L9	9	61	3009	3037	171	3.68	2.2E-02	108	6.3E-01
10	B2M2L10	17	61	3000	3056	171	2.35	1.4E-02	75.6	4.4E-01
11	B2M2L11	33	61	3005	2957	168	6.04	3.6E-02	188	1.1E+00
11D	B2M2L11D	38	61	3028	3027	171	6.63	3.9E-02	171	1.0E+00
12	B2M2L12	28	61	3003	3042	170	11.2	6.6E-02	276	1.6E+00
13	B2M2L13	2	61	3018	3022	170	12.4	7.3E-02	312	1.8E+00
14	B2M2L14	6	61	3000	3008	169	5.10	3.0E-02	169	1.0E+00
15	B2M2L15	21	61	3009	2944	168	3.05	1.8E-02	167	9.9E-01
16	B2M2L16	43	61	3000	3028	170	4.89	2.9E-02	113	6.6E-01
17	B2M2L17	44	61	3009	3039	171	10.8	6.3E-02	338	2.0E+00
18	B2M2L18	5	61	3009	3065	171	14.8	8.6E-02	556	3.2E+00
19	B2M2L19	14	61	3004	3044	171	17.8	1.0E-01	740	4.3E+00
19D	B2M2L19D	1	61	3000	3030	170	16.8	9.9E-02	557	3.3E+00
20	B2M2L20	25	61	3006	3049	171	3.84	2.2E-02	149	8.7E-01
21	B2M2L21	10	61	3018	3004	170	11.2	6.6E-02	206	1.2E+00
22	B2M2L22	26	61	3014	3035	171	12.2	7.2E-02	378	2.2E+00
23	B2M2L23	16	61	3007	3028	170	11.7	6.9E-02	335	2.0E+00
24	B2M2L24	23	61	3005	3030	170	15.9	9.3E-02	870	5.1E+00
25	B2M2L25	24	61	3002	3022	170	5.71	3.4E-02	316	1.9E+00
26	B2M2L26	15	61	3003	3034	170	7.86	4.6E-02	216	1.3E+00
27	B2M2L27	4	61	3003	3041	170	10.3	6.0E-02	296	1.7E+00
28	B2M2L28	13	61	3019	3026	170	21.4	1.3E-01	777	4.6E+00
29	B2M2L29	12	61	3000	3045	170	20.0	1.2E-01	875	5.1E+00
30	B2M2L30	27	61	3007	3145	173	13.1	7.6E-02	17.4	1.0E-01
BLANK	B2M2B						ND		ND	
							MDL = 0.4 ug		MDL = 0.4 ug	

EXHAUST FACE DATA

TEST: METALS #3
DATE: 12/07/95 PM
ETHOD: NIOSH 7300

BARSTOW MCLB
BOOTH 2 - TESTS
ACUREX PROJECT 8628

D E Initials: al
Q A Initials: wdu
Print Date: 01/04/96

BOOTH Temperature: 78 F P Barr: 27.98 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	TOTAL CHROME (ug)	TOTAL CHROME (mg/M3)	ZINC (ug)	ZINC (mg/M^3)
1	B2M3L1	12	60	3045	3051	168	1.51	9.0E-03	14.5	8.6E-02
2	B2M3L2	18	60	3013	3025	166	1.30	7.8E-03	40.2	2.4E-01
3	B2M3L3	17	60	3056	3070	169	2.32	1.4E-02	63.3	3.8E-01
4	B2M3L4	42	60	3015	3041	167	4.10	2.5E-02	103	6.2E-01
5	B2M3L5	22	60	3026	3008	166	2.30	1.4E-02	80.4	4.8E-01
6	B2M3L6	7	60	3068	3072	169	1.02	6.0E-03	10.3	6.1E-02
7	B2M3L7	20	60	3045	3064	168	2.55	1.5E-02	126	7.5E-01
8	B2M3L8	5	60	3036	3063	168	5.33	3.2E-02	201	1.2E+00
9	B2M3L9	9	60	3037	3061	168	8.25	4.9E-02	446	2.7E+00
10	B2M3L10	38	60	3027	3033	167	1.66	9.9E-03	70.7	4.2E-01
11	B2M3L11	6	60	3008	3017	166	5.07	3.1E-02	209	1.3E+00
11D	B2M3L11D	43	60	3028	3065	168	3.58	2.1E-02	102	6.1E-01
12	B2M3L12	4	60	3041	3049	168	4.08	2.4E-02	229	1.4E+00
13	B2M3L13	37	60	3043	3077	169	6.48	3.8E-02	386	2.3E+00
14	B2M3L14	16	60	3028	3065	168	ND	2.4E-03	199	1.2E+00
15	B2M3L15	27	60	3005	3005	165	1.27	7.7E-03	328	2.0E+00
16	B2M3L16	25	60	3003	3027	166	2.88	1.7E-02	67.1	4.0E-01
17	B2M3L17	15	60	3034	3053	168	5.03	3.0E-02	246	1.5E+00
18	B2M3L18	8	60	3038	3056	168	10.6	6.3E-02	492	2.9E+00
19	B2M3L19	26	60	3035	3040	167	17.7	1.1E-01	1120	6.7E+00
19D	B2M3L19D	24	60	3022	3065	168	12.8	7.6E-02	504	3.0E+00
20	B2M3L20	44	60	3039	3044	167	2.08	1.2E-02	274	1.6E+00
21	B2M3L21	28	60	3042	3055	168	2.45	1.5E-02	105	6.3E-01
22	B2M3L22	2	60	3022	3058	167	9.84	5.9E-02	423	2.5E+00
23	B2M3L23	33	60	3000	2993	165	13.8	8.4E-02	567	3.4E+00
24	B2M3L24	3	60	3032	3023	167	16.8	1.0E-01	1010	6.1E+00
25	B2M3L25	13	60	3026	3050	167	3.04	1.8E-02	415	2.5E+00
26	B2M3L26	12	60	3045	3051	168	3.50	2.1E-02	120	7.1E-01
27	B2M3L27	10	60	3004	3022	166	4.80	2.9E-02	172	1.0E+00
28	B2M3L28	1	60	3030	3022	167	23.6	1.4E-01	1310	7.9E+00
29	B2M3L29	23	60	3030	3033	167	29.4	1.8E-01	1360	8.1E+00
30	B2M3L30	14	60	3044	3050	168	17.6	1.0E-01	1180	7.0E+00
BLANK	B2M3B						ND		0.986	

MDL = 0.4 ug MDL = 0.4 ug

1/1 - D.5

EXHAUST FACE DATA

TEST: METALS # 1
~~DATE: 12/08/95 AM~~
METHOD: NIOSH 7300

~~BARSTOW MCLB~~
BOOTH 3 - TESTS
ACUREX PROJECT 8628

D E Initials: al
Q A Initials: wdu
Print Date: 01/04/96

BOOTH Temperature: 71 F P Barr: 28.09 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	TOTAL CHROME (ug)	TOTAL CHROME (mg/M3)	ZINC (ug)	ZINC (mg/M^3)
1	* B3M1L1	24	75	3014	3051	212	ND	1.9E-03	0.577	2.7E-03
2	* B3M1L2	7	75	3005	3080	213	ND	1.9E-03	1.28	6.0E-03
3	* B3M1L3	8	75	3003	3043	212	ND	1.9E-03	0.706	3.3E-03
4	* B3M1L4	37	75	3002	3116	214	ND	1.9E-03	1.86	8.7E-03
5	B3M1L5	1	75	2996	3015	210	1.09	5.2E-03	4.13	2.0E-02
6	B3M1L6	17	75	3009	3030	211	4.50	2.1E-02	25.8	1.2E-01
7	B3M1L7	15	75	3002	3093	213	1.10	5.2E-03	5.59	2.6E-02
8	B3M1L8	2	75	3016	3022	211	3.20	1.5E-02	19.5	9.2E-02
9	B3M1L9	25	75	3000	3030	211	18.1	8.6E-02	170	8.1E-01
10	B3M1L10	6	75	3013	3051	212	15.7	7.4E-02	112	5.3E-01
11	B3M1L11	28	75	3000	3018	211	4.13	2.0E-02	85.2	4.0E-01
12	B3M1L12	22	75	3002	2990	210	11.9	5.7E-02	85.2	4.1E-01
13	B3M1L13	12	75	2995	3045	211	44.9	2.1E-01	378	1.8E+00
14	B3M1L14	43	75	3003	3050	212	48.5	2.3E-01	334	1.6E+00
14D	B3M1L14D	42	75	3000	3026	211	42.0	2.0E-01	327	1.6E+00
15	B3M1L15	4	75	3000	3046	212	7.46	3.5E-02	61.5	2.9E-01
16	B3M1L16	44	75	3011	3034	212	26.7	1.3E-01	257	1.2E+00
17	B3M1L17	26	75	3012	3004	211	40.9	1.9E-01	353	1.7E+00
18	B3M1L18	3	75	3005	3043	212	43.3	2.0E-01	338	1.6E+00
19	B3M1L19	27	75	3015	3099	214	12.1	5.7E-02	724	3.4E+00
20	B3M1L20	18	75	3013	3003	211	21.2	1.0E-01	242	1.1E+00
21	B3M1L21	30	75	3014	3104	214	15.2	7.1E-02	130	6.1E-01
BLANK	B3M1B						ND		0.818	

* Pump did not run

MDL = 0.4 ug MDL = 0.4 ug

EXHAUST FACE DATA

1/1 0.5

TEST: METALS # 2
DATE: ~~12/08/95 PM~~
METHOD: NIOSH 7300

~~BARSTOW MCLB~~
BOOTH 3 - TESTS
~~ACUREX PROJECT 8628~~

D E Initials: al
Q A Initials: wdu
Print Date: 01/04/96

BOOTH Temperature: 77 F P Barr: 28.09 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	TOTAL CHROME (ug)	TOTAL CHROME (mg/M3)	ZINC (ug)	ZINC (mg/M^3)
1	B3M2L1	2	67	3022	3024	187	ND	2.1E-03	1.10	5.9E-03
2	B3M2L2	27	67	3004	2984	185	1.86	1.0E-02	13.9	7.5E-02
3	B3M2L3	6	67	3018	2991	186	2.76	1.5E-02	40.0	2.2E-01
4	B3M2L4	7	67	3006	2997	186	1.62	8.7E-03	9.14	4.9E-02
5	B3M2L5	37	67	3007	2969	185	6.48	3.5E-02	99.2	5.4E-01
6	B3M2L6	25	67	3003	2960	184	11.5	6.2E-02	76.5	4.1E-01
7	B3M2L7	22	67	3011	3027	187	3.97	2.1E-02	35.5	1.9E-01
8	B3M2L8	17	67	3006	3018	186	8.53	4.6E-02	94.6	5.1E-01
9	B3M2L9	24	67	3017	2976	185	25.9	1.4E-01	285	1.5E+00
10	B3M2L10	28	67	3018	2997	186	20.2	1.1E-01	208	1.1E+00
11	B3M2L11	44	67	3017	2997	186	8.38	4.5E-02	132	7.1E-01
12	B3M2L12	8	67	3005	2988	185	12.3	6.6E-02	128	6.9E-01
13	B3M2L13	1	67	3015	2992	186	41.2	2.2E-01	397	2.1E+00
14	B3M2L14	15	67	3025	3014	187	34.1	1.8E-01	486	2.6E+00
14D	B3M2L14D	30	67	3002	2965	185	35.0	1.9E-01	499	2.7E+00
15	B3M2L15	42	67	3026	3000	186	12.5	6.7E-02	99.2	5.3E-01
16	B3M2L16	18	67	3003	2986	185	29.3	1.6E-01	304	1.6E+00
17	B3M2L17	12	67	3009	3010	186	24.1	1.3E-01	268	1.4E+00
18	B3M2L18	3	67	3011	2992	186	23.2	1.2E-01	575	3.1E+00
19	B3M2L19	26	67	3004	2975	185	15.5	8.4E-02	250	1.4E+00
20	B3M2L20	4	67	3008	2961	185	12.0	6.5E-02	307	1.7E+00
21	B3M2L21	43	67	3009	3032	187	7.39	4.0E-02	115	6.2E-01
BLANK	B3M2B						ND		2.58	
							MDL = 0.4 ug		MDL = 0.4 ug	

TEST: METALS # 3
DATE: 12/09/95 AM
METHOD: NIOSH 7300

EXHAUST FACE DATA

BARSTOW MCLB
BOOTH 3 - TESTS
ACUREX PROJECT 8628

D E Initials: al
Q A Initials: wdu
Print Date: 01/04/96

BOOTH Temperature: 69 F P Barr: 28.15 in Hg

GRID LOC	ACUREX Sample #	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	TOTAL CHROME (ug)	TOTAL CHROME (mg/M3)	ZINC (ug)	ZINC (mg/M^3)
1	B3M3L1	17	64	3005	3032	181	ND	2.2E-03	1.21	6.7E-03
2	B3M3L2	3	64	3002	3055	182	1.04	5.7E-03	4.80	2.6E-02
3	B3M3L3	26	64	3007	3035	182	ND	2.2E-03	1.02	5.6E-03
4	B3M3L4	28	64	2996	3009	180	0.618	3.4E-03	1.19	6.6E-03
5	B3M3L5	7	64	3003	3079	183	4.22	2.3E-02	18.2	1.0E-01
6	B3M3L6	8	64	3004	3048	182	6.61	3.6E-02	18.3	1.0E-01
7	B3M3L7	44	64	3000	3046	182	2.72	1.5E-02	17.4	9.6E-02
8	B3M3L8	18	64	3000	3009	181	7.90	4.4E-02	32.3	1.8E-01
9	B3M3L9	15	64	3002	3066	182	9.32	5.1E-02	135	7.4E-01
10	B3M3L10	25	64	3008	3031	181	8.98	4.9E-02	86.1	4.7E-01
11	B3M3L11	22	64	3008	3021	181	5.69	3.1E-02	41.6	2.3E-01
12	B3M3L12	12	64	3004	3053	182	5.37	3.0E-02	41.9	2.3E-01
I3	B3M3L13	43	64	3015	3075	183	19.9	1.1E-01	292	1.6E+00
14 *	B3M3L14	41	64	3008	2959	179	14.7	8.2E-02	286	1.6E+00
14D	B3M3L14D	1	64	3000	3025	181	27.2	1.5E-01	393	2.2E+00
15	B3M3L15	6	64	3020	3052	182	12.4	6.8E-02	47.6	2.6E-01
16	B3M3L16	2	64	3007	3018	181	8.08	4.5E-02	31.4	1.7E-01
17	B3M3L17	4	64	3000	3051	182	19.2	1.1E-01	244	1.3E+00
18 *	B3M3L18	37	64	3008	3059	182	5.67	3.1E-02	24.7	1.4E-01
19	B3M3L19	30	64	3018	3054	182	12.7	7.0E-02	830	4.5E+00
20	B3M3L20	24	64	3016	3053	182	12.9	7.1E-02	523	2.9E+00
21	B3M3L21	27	64	3008	3107	184	4.90	2.7E-02	103	5.6E-01
BLANK	B3M3B						ND		ND	

* Pump dead at end of test

MDL = 0.4 ug MDL = 0.4 ug

BOOTH 1 DUCT DATA - METALS

1/1 0.5

TEST: METALS (TOT. CHROMIUM) BARSTOW MCLB
DATE: 11/30 - 12/2/95 RECIRC. DUCT TESTS
METHOD: EPA 0060 ACUREX PROJECT 8628

DE Initials: wdu
QA Initials: wdu
Print Date: 1/17/96

BOOTH #	TEST #	LOCATION	SAMPLE VOLUME (dscf)		MASS CHROME (ug)	CONC. CHROME (mg/m^3)
1	M1	NR	39.7		4.70	4.18E-03
1	M1	SR	51.2		6.65	4.59E-03
1	M2	NR	62.3		25.1	1.42E-02
1	M2	SR	63.2		8.99	5.03E-03
1	M3	NR	55.0		*	NA
1	M3	SR	55.1		11.7	7.50E-03
1	M4	NR	54.3		4.61	3.00E-03
1	M4	SR	55.7		6.23	3.95E-03
1	M5	NR	58.8		7.50	4.51E-03
1	M5	SR	61.6		10.3	5.91E-03
1	M6	NR	51.8		3.17	2.16E-03
1	M6	SR	51.2		6.82	4.71E-03
1	BLANK	NR			3.10	
1	BLANK	SR			4.37	
1	SPIKE	B1M10NR			1.75	
1	SPIKE	B1M10SR			1.96	
1	BLANK	HNO3		<	0.500	
1	BLANK	SOL'N		<	0.500	
1	BLANK	H20		<	0.500	
	STANDARD	EPA			8610	

DETECTION LEVEL: 0.5 ug/train

* Sample was lost due to lab accident during preparation.

BOOTH 2 Duct Data - METALS

TEST: HEXAVALENT CHROMIUM
DATE: 12/5 - 12/11/95
METHOD: EPA 0061

BARSTOW MCLB
RECIRC. DUCT TESTS
ACUREX PROJECT 8628

DE Initials: wdu
QA Initials: wdu
Print Date: 1/17/96

BOOTH #	TEST #	LOCATION	SAMPLE VOLUME (dscf)		MASS CHROME (ug)	CONC. CHROME (mg/m^3)
2	C1	NR	45.1		1.46	1.14E-03
2	C1	SR	47.5		0.722	5.37E-04
2	C2	NR	45.5		0.071	5.51E-05
2	C2	SR	45.1		0.115	9.01E-05
2	C3	NR	42.2		0.0889	7.44E-05
2	C3	SR	43.9		0.188	1.51E-04
2	C4	NR	42.8		0.323	2.67E-04
2	C4	SR	44.1		1.87	1.50E-03
2	C5	NR	41.2		0.520	4.46E-04
2	C5	SR	43.1		0.443	3.63E-04
2	C6	NR	45.1		0.228	1.79E-04
2	C6	SR	45.0		0.102	8.01E-05
2	BLANK	NR		<	0.067	
2	BLANK	SR			0.100	
2	SPIKE	B2C10NR			0.561	
2	SPIKE	B2C10SR			0.369	
2	BLANK	KOH				
2	BLANK	H20				

DETECTION LEVEL: 0.07 mg/train

BOOTH 3 DUCT DATA - METALS

TEST: HEXAVALENT CHROMIUM
DATE: 12/5 - 12/11/95
METHOD: EPA 0061

BARSTOW MCLB
RECIRC. DUCT TESTS
ACUREX PROJECT 8628

DE Initials: wdu
QA Initials: wdu
Print Date: 1/17/96

BOOTH #	TEST #	LOCATION	SAMPLE VOLUME (dscf)		MASS CHROME (ug)	CONC. CHROME (mg/m^3)
3	C1	WR	46.2		0.112	8.57E-05
3	C1	ER	39.1		0.545	4.93E-04
3	C2	WR	46.5		0.150	1.14E-04
3	C2	ER	37.3		0.225	2.13E-04
3	C3	WR	47.1		0.084	6.30E-05
3	C3	ER	44.9		0.385	3.03E-04
3	C4	WR	50.2		0.286	2.01E-04
3	C4	ER	43.6		0.173	1.40E-04
3	C5	WR	50		0.175	1.24E-04
3	C5	ER	44.2		0.172	1.38E-04
3	C6	WR	50		0.072	5.09E-05
3	C6	ER	42.3		0.246	2.05E-04
3	BLANK	WR			0.155	
3	BLANK	ER			0.114	
3	BLANK	KOH			0.040	
3	BLANK	H20		<	0.026	
3	STANDARD	EPA			9.60E+05 ug/L	

DETECTION LEVEL: 0.054 g/train

BOOTH 1
BOOTH 2
BOOTH 3

PAINTER Data

1/1 D.

TEST: ISOCYANATES
DATE: NA
METHOD: OSHA 42

BARSTOW MCLB
PAINTER - TESTS
ACUREX PROJECT 8628

D E Initials: wdu
Q A Initials: wdu
Print Date: 04/25/96

ACUREX Sample #	BOOTH TEMP (deg F)	BAROM PRESS (in Hg)	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	HDI (ug)	HDI (mg/M3)
B1I1P1BAS	65	28.3	41	62	982	979	57.8	2.04	3.5E-02
B1I1P2BAS	65	28.3	36	62	1071	1051	62.6	1.12	1.8E-02
B1I2P1BAS	68	28.3	41	54	979	3845	123	0.67	5.4E-03
B1I2P2BAS	68	28.3	36	54	1051	1216	57.9	0.68	1.2E-02
B1I3P1BAS	63	28.3	45	37	1005	1011	35.6	0.88	2.5E-02
B1I3P1BASD	63	28.3	36	37	1031	970	35.3	0.69	2.0E-02
B1I3P2BAS	63	28.3	28	37	1004	990	35.2	0.51	1.4E-02
								Average:	1.8E-02
B1I1P1	68	28.2	40	57	1010	1006	54.2	1.39	2.6E-02
B1I1P2	68	28.2	28	57	1000	987	53.4	0.70	1.3E-02
B1I1P2D	68	28.2	32	57	1016	1044	55.3	0.96	1.7E-02
B1I2P1	68	28.2	40	70	1006	1014	66.6	0.59	8.9E-03
B1I2P2	68	28.2	28	70	987	993	65.3	1.35	2.1E-02
B1I3P1	64	28.0	40	63	1016	1004	60.0	2.04	3.4E-02
B1I3P2	64	28.0	28	63	996	1005	59.4	1.39	2.3E-02
B1I3P2D	64	28.0	32	63	1022	1066	62.0	1.32	2.1E-02
								Average:	2.1E-02
B2I1P1BAS	87	28.0	36	56	1007	986	50.4	ND <	1.2E-03
B2I1P2BAS	87	28.0	34	56	1020	960	50.1	0.14	2.8E-03
B2I1P2BASD	87	28.0	20	56	1013	992	50.7	0.13	2.6E-03
B2I2P1BAS	87	28.0	36	52	1000	1000	47.0	ND <	1.3E-03
B2I2P2BAS	87	28.0	34	52	1000	1007	47.1	0.43	9.1E-03
B2I3P1BAS	70	28.1	36	60	1012	1012	56.8	ND <	1.1E-03
B2I3P2BAS	70	28.1	45	60	1001	1035	57.1	0.34	5.9E-03
								Average:	3.4E-03
B2I1P1	78	28.2	45	61	1015	1044	58.1	ND <	1.0E-03
B2I1P2	78	28.2	31	61	1007	1000	56.6	ND <	1.1E-03
B2I1P2D	78	28.2	34	61	1006	997	56.5	0.08	1.4E-03
B2I2P1	74	28.0	45	61	1003	1000	56.5	ND <	1.1E-03
B2I2P1D	74	28.0	34	61	3007	3055	171	ND <	3.5E-04
B2I2P2	74	28.0	31	61	1017	1070	58.9	0.36	6.1E-03
B2I3P1	74	28.0	45	60	1000	1036	56.5	ND <	1.1E-03
B2I3P2	74	28.0	31	60	1012	1031	56.7	0.26	4.6E-03
								Average:	2.1E-03
B3I1P1BAS	75	28.2	11	60	1017	1040	57.4	ND <	1.0E-03
B3I2P1BAS	78	28.0	26	60	996	948	53.6	ND <	1.1E-03
B3I2P1BASD	78	28.0	20	60	990	985	54.4	ND <	1.1E-03
B3I3P1BAS	77	28.0	26	60	948	954	52.5	ND <	1.1E-03
								Average:	1.1E-03
B3I1P1	71	28.1	45	75	1003	1012	70.6	ND <	8.5E-04
B3I2P1	77	28.1	45	75	1012	1027	70.6	ND <	8.5E-04
B3I2P1D	77	28.1	39	67	1001	1009	62.2	ND <	9.6E-04
B3I3P1	69	28.2	45	64	999	1000	60.2	ND <	1.0E-03
								Average:	9.2E-04

DETECTION LEVEL:
0.06 ug/filter

BOOTH 1 DUCT DATA - ISO BOOTH 1 1/1

TEST: ISOCYANATE (HDI) | BARSTOW MCLB | DE Initials: wdu
DATE: 11/30 - 12/11/95 | RECIRC. DUCT TESTS | QA Initials: wdu
METHOD: EPA XXX1 | ACUREX PROJECT 8628 | Print Date: 4/16/96

BOOTH #	TEST #	LOCATION	SAMPLE VOLUME (dscf)		MASS HDI IMP 1 (ug)		MASS HDI IMP 2,3,4 (ug)		CONC. HDI (mg/m^3)
1	I1	NR	49.3	<	1.1	<	1.0	<	1.51E-03
1	I1	SR	46.7	<	1.0	<	0.9	<	1.44E-03
1	I2	NR	58.2	<	1.0	<	0.9	<	1.15E-03
1	I2	SR	53.1	<	1.1	<	1.1	<	1.46E-03
1	I3	NR	50.8	<	1.1	<	1.1	<	1.53E-03
1	I3	SR	51.7	<	1.1	<	1.0	<	1.44E-03
1	I4	NR	48.8	<	1.1		2.6		2.68E-03
1	I4	SR	46.5		22.5		53.1		5.74E-02
1	I5	NR	56.8		37.9		21.3		3.68E-02
1	I5	SR	50.8		34.4		39.0		5.11E-02
1	I6	NR	49.2		31.3		27.1		4.19E-02
1	I6	SR	41.9		13.4		14.9		2.39E-02
1	BLANK	NR			7.1		10.8		
1	BLANK	SR			39.5		13.9		
1	BLANK	TOLUENE		<	0.6				
1	BLANK	ACETONIT		<	0.7				
	BLANK	IMP SOLN		<	1.1				

DETECTION LEVEL: 1.049/min

EPA Draft method analytical results Booth 2 1/7

DUCT DATA

TEST: ISOCYANATE (HDI)
DATE: 11/30 - 12/11/95
METHOD: EPA XXX1

~~BARSTOW MCLB~~
RECIRC. DUCT TESTS
~~ACUREX PROJECT 8628~~

DE Initials: wdu
QA Initials: wdu
Print Date: 4/16/96

BOOTH #	TEST #	LOCATION	SAMPLE VOLUME (dscf)	MASS HDI IMP 1 (ug)	MASS HDI IMP 2,3,4 (ug)	CONC. HDI (mg/m^3)
2	I1	NR	43.4	23.6	35.9	4.84E-02
2	I1	SR	40.2 <	1.0	11.2	1.07E-02
2	I2	NR	43.9	19.1	32.9	4.19E-02
2	I2	SR	36.8 <	1.1	8.4	9.12E-03
2	I3	NR	43.2	12.5	76.2	7.26E-02
2	I3	SR	37.5	6.1	43.7	4.69E-02
2	I4	NR	42.9	10.9	40.3	4.22E-02
2	I4	SR	38.1	8.0	32.0	3.71E-02
2	I5	NR	43.4	5.5	10.0	1.26E-02
2	I5	SR	37.5	15.6	8.1	2.23E-02
2	I6	NR	46.0	2.7	10.3	9.99E-03
2	I6	SR	41.0	1.6 <	0.9	2.15E-03
2	BLANK	NR		10.9	17.8	
2	BLANK	SR		22.3	7.6	
2	SPIKE	B2I10NR		10.7	5.5	
2	SPIKE	B2I10SR		7.2	7.7	
2	BLANK	TOLUENE	<	0.8		
2	BLANK	ACETONIT	<	0.8		
2	BLANK	IMP SOLN		7.4		

Booth 3 Duct Data - ISO 1/1 D.6

TEST: ISOCYANATE (HDI)
DATE: 11/30 - 12/11/95
METHOD: EPA XXX1

BARSTOW MCLB
RECIRC. DUCT TESTS
ACUREX PROJECT 8628

DE Initials: wdu
QA Initials: wdu
Print Date: 4/16/96

BOOTH #	TEST #	LOCATION	SAMPLE VOLUME (dscf)	MASS HDI IMP 1 (ug)	MASS HDI IMP 2,3,4 (ug)	CONC. HDI (mg/m^3)
3	I1	WR	44.9 <	1.1 <	1.0 <	1.65E-03
3	I1	ER	38.27 <	1.1 <	1.3 <	2.22E-03
3	I2	WR	42.4 <	1.4 <	1.2 <	2.17E-03
3	I2	ER	38.7 <	1.3 <	1.4 <	2.47E-03
3	I3	WR	44.3 <	1.3 <	1.4 <	2.15E-03
3	I3	ER	46.6 <	1.3	1.6	2.20E-03
3	I4	WR	44.7	1.2	2.4	2.85E-03
3	I4	ER	42.7 <	1.4 <	1.6 <	2.48E-03
3	I5	WR	45.1	2.0 <	1.4	2.66E-03
3	I5	ER	43.6 <	1.5 <	1.5 <	2.43E-03
3	I6	WR	43.2 <	1.1	1.2	1.88E-03
3	I6	ER	45.5	1.2 <	0.7	1.48E-03
3	BLANK	WR		1.7 <	0.8	
3	BLANK	ER	<	1.3 <	1.2	
3	BLANK	TOLUENE	<	1.0		
3	BLANK	ACETONIT	<	0.7		
3	BLANK	IMP SOLN	<	1.2		

DETECTION LEVEL: 1.0 mg/sample

Booth 2
Booth 3 Painter Data

TEST: PHOSPHORIC ACID
DATE: NA
METHOD: NIOSH 7903

BARSTOW MCLB
PAINTER - TESTS
ACUREX PROJECT 8628

D E Initials: wdu
Q A Initials: wdu
Print Date: 04/24/96

ACUREX Sample #	BOOTH TEMP (deg F)	BAROM PRESS (in Hg)	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	PHOS ACID (ug)		PHOS ACID (mg/M3)
B2PH1P1BAS	87	28.0	55	56	500	497	25.2	ND	<	1.6E-02
B2PH1P2BAS	87	28.0	52	56	502	505	25.5	ND	<	1.6E-02
B2PH2P1BAS	87	28.0	55	52	497	513	23.7	ND	<	1.7E-02
B2PH2P2BAS	87	28.0	52	52	505	519	24.1	ND	<	1.7E-02
B2PH3P1BAS	70	28.1	55	60	501	507	28.3	ND	<	1.4E-02
B2PH3P2BAS	70	28.1	50	60	500	509	28.3	ND	<	1.4E-02
B2PH3P2BASD	70	28.1	54	60	487	350	23.5	ND	<	1.7E-02
								Average:		1.6E-02
B2PH1P1	73	28.2	55	70	502	504	32.9	ND	<	1.2E-02
B2PH1P2	73	28.2	52	70	501	496	32.6	ND	<	1.2E-02
B2PH1P2D	73	28.2	54	70	504	503	32.9	ND	<	1.2E-02
B2PH2P1	78	28.2	55	60	504	503	27.9	ND	<	1.4E-02
B2PH2P1D	78	28.2	54	60	503	523	28.5	ND	<	1.4E-02
B2PH2P2	78	28.2	52	60	496	498	27.6	ND	<	1.5E-02
B2PH3P1	75	28.2	55	61	500	500	28.4	ND	<	1.4E-02
B2PH3P2	75	28.2	52	61	502	501	28.5	ND	<	1.4E-02
								Average:		1.3E-02
B3PH1P1BAS	75	28.2	50	60	520	482	28.0	ND	<	1.4E-02
B3PH2P1BAS	78	28.0	55	60	501	496	27.5	ND	<	1.5E-02
B3PH3P1BAS	77	28.0	55	60	496	486	27.1	ND	<	1.5E-02
B3PH3P1BASD	77	28.0	54	60	504	524	28.4	ND	<	1.4E-02
								Average:		1.4E-02
B3PH1P1	76	28.2	51	62	560	532	31.4	ND	<	1.3E-02
B3PH2P1	71	28.1	52	60	502	585	30.5	ND	<	1.3E-02
B3PH2P1D	71	28.1	50	60	509	500	28.3	ND	<	1.4E-02
B3PH3P1	73	28.1	52	60	585	624	33.7	ND	<	1.2E-02
								Average:		1.3E-02

Booth 2

EXHAUST DUCT DATA

1/1

TEST: PHOSPHORIC ACID
DATE: NA
METHODS: NIOSH 7903

~~BARSTOW MCLB~~
~~BOOTH 2 - DUCTS~~
ACUREX PROJECT 8628

D E Initials: wdu
Q A Initials: wdu
Print Date: 04/16/96

ACUREX Sample #	TEMP (deg F)	BAROM PRESS (in Hg)	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	PHOS ACID (ug)	PHOS ACID (mg/M3)
B2 PH 1 RN	73	28.2	50	70	503	508	33.0	ND	2.3E-02
B2 PH 1 RS	73	28.2	53	70	450	450	29.4	ND	2.6E-02
B2 PH 2 RN	78	28.2	50	60	508	506	28.1	ND	2.7E-02
B2 PH 2 RS	78	28.2	53	60	450	448	24.9	ND	3.0E-02
B2 PH 3 RN	75	28.2	50	61	501	500	28.4	ND	2.6E-02
B2 PH 3 RS	75	28.2	53	61	465	454	26.1	ND	2.9E-02
B2 PH 4 RN	78	28.2	55	61	500	505	28.4	ND	2.6E-02
B2 PH 4 RND	78	28.2	52	61	501	501	28.3	ND	2.7E-02
B2 PH 4 RS	78	28.2	50	61	500	500	28.2	ND	2.7E-02
B2 PH 5 RN	74	28.0	55	61	500	510	28.5	ND	2.6E-02
B2 PH 5 RS	74	28.0	50	61	500	511	28.5	ND	2.6E-02
B2 PH 5 RSB	74	28.0	NA	NA	NA	NA	NA	ND	NA
B2 PH 6 RN	74	28.0	55	60	502	555	29.3	ND	2.6E-02
B2 PH 6 RS	74	28.0	50	60	502	560	29.5	ND	2.5E-02
							MDL =	0.75	ug/tube

* Pump off at end of test

BOOTH 3 EXHAUST DUCT DATA 1/1

TEST: PHOSPHORIC ACID
DATE: NA
METHODS: NIOSH 7903

BARSTOW MCLB
BOOTH 3 - DUCTS
ACUREX PROJECT 8628

D E Initials: wdu
Q A Initials: wdu
Print Date: 04/16/96

ACUREX Sample #	TEMP (deg F)	BAROM PRESS (in Hg)	PUMP #	SAMPLE TIME (min)	PRE-Cal (ml/min)	POST-Cal (ml/min)	VOL (L) @ STP	PHOS ACID (ug)	PHOS ACID (mg/M3)
B3 PH 1 RE	71	28.1	50	75	502	495	34.9	ND	2.1E-02
B3 PH 1 RW	71	28.1	55	75	504	494	34.9	ND	2.1E-02
B3 PH 2 RE	77	28.1	50	67	500	505	31.1	ND	2.4E-02
B3 PH 2 RW	77	28.1	55	67	500	505	31.1	ND	2.4E-02
B3 PH 3 RE	69	28.2	50	64	517	511	30.9	ND	2.4E-02
B3 PH 3 RW	69	28.2	55	64	516	499	30.6	ND	2.5E-02
B3 PH 4 RE	76	28.2	50	62	511	520	29.7	ND	2.5E-02
B3 PH 4 RED	76	28.2	54	62	504	261	22.0	ND	3.4E-02
B3 PH 4 RW	76	28.2	55	62	499	525	29.5	ND	2.5E-02
B3 PH 5 RE	71	28.1	54	60	500	644	32.1	ND	2.3E-02
B3 PH 5 RW	71	28.1	55	60	507	500	28.2	ND	2.7E-02
B3 PH 5 RWB	71	28.1	NA	NA	NA	NA	NA	ND	NA
B3 PH 6 RE	73	28.1	54	60	644	637	35.8	ND	2.1E-02
B3 PH 6 RW	73	28.1	55	60	500	506	28.1	ND	2.7E-02

* Pump off at end of test

MDL = 0.75 ug/tube

FLOW RATE MEASUREMENT RESULTS

BOOTH 1 DATA Surface area = 200 square feet

Test 1		Test 2		Test 3		Test 4		Test 5		Test 6	
120	130	120	135	130	135	125	125	130	130	130	130
130	125	130	130	125	130	120	125	130	130	130	135
125	120	125	130	135	130	125	120	130	130	125	130
130	120	135	130	125	130	120	120	130	130	130	130
125	130	125	130	130	130	125	120	120	120	125	125
130	120	135	125	120	125	120	120	130	125	125	125
120	120	125	120	135	120	125	120	125	130	125	130
130	125	130	125	125	125	120	120	120	125	125	125
125	120	125	120	130	120	125	120	125	120	130	125
130	120	130	120	125	125	125	120	125	125	125	125
120	120	125	120	130	115	125	120	110	115	115	110
120	120	130	120	125	120	120	120	125	120	125	115
110	110	100	115	120	120	120	120	105	110	105	110
120	110	110	110	110	110	100	100	100	110	105	100
105	85	95	95	105	110	105	115	110	105	105	110
115	100	100	100	100	100	110	100	100	95	105	95
115	116	117	117	116	116	116	118	113	120	114	120
Average	**115**		**117**		**116**		**117**		**116**		**117**

Anem results:	23061	23412	23218	23377	23265	23353
Method 2	33956	33594	33090	32463	32812	33371
Accuracy RPD	38%	36%	35%	33%	34%	35%

Method 2 precision (RSD)	1.49%
Anemometer precision (RSD)	0.51%

Painter 1	100	105	100	105	100	105
Painter 2	100	100	95	105	100	95

D.8.2

BOOTH 2 DATA

surface area = 233 sq ft

Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
90	105	105	110	105	105
90	100	105	110	105	105
105	100	100	105	105	100
100	100	100	105	105	100
100	105	105	105	110	105
105	100	105	100	100	100
110	105	110	105	105	105
105	105	110	110	110	110
105	110	110	110	110	105
110	110	110	110	110	110
110	100	100	100	105	105
110	105	110	100	105	100
110	105	105	105	105	105
110	110	110	105	105	105
110	105	105	110	105	105
100	100	95	100	105	105
105	105	105	105	105	105
105	105	105	105	110	105
110	105	105	105	115	105
110	110	105	100	105	100
110	100	110	105	110	105
110	105	105	105	105	110
110	110	110	105	105	105
110	110	110	105	105	100
110	110	110	110	105	105
90	100	110	100	100	100
95	105	100	105	110	110
110	110	105	110	110	110
110	115	110	110	115	115
105	115	115	110	110	115
100	105	115	100	105	100
105	110	100	110	110	115
110	110	110	115	110	115
110	110	110	115	115	120
110	115	115	115	115	110
106	**106**	**107**	**106**	**107**	**106**

Anemom results	24633	24800	24933	24833	25067	24800
Method 2	25881	26295	25611	26300	26369	26287
Accuracy RPD	5%	6%	3%	6%	5%	6%

Method 2 precision (RSD) 1.07%
Anemometer precision (RSD) 0.54%

Painter 1:	100	105	100	100	95	95
Painter 2:	100	105	100	100	100	100

D.82

BOOTH 3 DATA

surface area = 167 sq ft

	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
	105	110	110	110	105	110
	105	115	110	115	115	115
	105	100	110	110	115	110
	105	105	110	110	110	105
	105	105	105	105	110	110
	105	105	105	105	105	105
	105	105	105	105	105	105
	105	105	100	105	105	100
	105	100	110	100	100	100
	110	105	110	110	110	105
	105	105	105	105	105	105
	105	105	105	105	105	105
	105	110	100	105	105	105
	100	105	100	100	100	100
	100	105	105	100	100	105
	105	105	105	105	105	105
	105	105	100	105	110	110
	105	105	100	105	110	100
	110	100	110	100	100	100
	110	105	110	105	105	105
	110	105	110	105	105	105
	105	105	110	105	105	105
	105	105	110	105	110	105
	105	105	105	105	105	105
	105	105	105	110	105	100
Average	**105**	**105**	**106**	**106**	**106**	**105**
Anemom results	17567	17533	17700	17600	17700	17500
Method 2	19783	19565	19813	19459	19844	19449
Accuracy RPD	12%	11%	11%	10%	11%	11%
Method 2 precision (RSD)			0.85%			
Anemometer precision (RSD)			0.44%			
Painter	100	100	100	105	100	100

Average RPD: 17%
RPD variance: 13%

D.6.3

ANALYTICAL LABORATORY MULTIPLE LEVEL SPIKE AND RECOVERY ANALYSIS RESULTS

Method	Target Analyte	Spiking Level (ug)	Recovery (ug)	Recovery (%)	
EPA 0061	Hexavalent Cr	0.500	0.515	103%	Accuracy ± 3%
		2.50	2.50	100%	
		2.50	2.45	98%	
		5.00	4.87	97%	
EPA 0060	Total Chromium	25.0	25.8	103%	Accuracy ± 9% avg =
		10.0	10.9	109%	
		10.0	10.9	109%	
		3.0	3.06	102%	
NIOSH 7300	Total Chromium	0.80	0.693	87%	Accuracy = ± 4%
		5.0	4.82	96%	
		5.0	4.81	96%	
		30.0	30.5	102%	
NIOSH 7300	Zinc	1.0	0.967	97%	Accuracy = ± 7%
		100	104	104%	
		100	105	105%	
		1000	1067	107%	
OSHA 42	HDI	0.10	0.12	120%	Accuracy = ± 27%
		0.51	0.39	76%	
		0.51	0.37	73%	
		2.55	2.09	82%	
EPA Draft	HDI	2.0	2.5	125%	Accuracy ± 44%
		10.2	6.5	64%	
		51.0	32.0	63%	
		51.0	28.5	56%	

AVG 99%

METALS

RPD analysis of duplicate NIOSH 7300 samples
Filename: QAQC; Directory: 123R5w\work\barstow\demotest
Worksheet: 7300RPD
Date: June 15, 1996

D.3

BOOTH 1 EXHAUST FACE SAMPLES

	Chrome
M1L8	0.071
M1L8D	0.083
RPD	-16%
M1L31	0.051
M1L31D	0.042
RPD	19%
M2L8	0.028
M2L8D	0.013
RPD	73%
M2L31	0.01
O2L31D	0.01
RPD	0%
M3L8	0.012
M3L8D	0.019
RPD	-45%
M3L31	0.022
M3L31D	0.031
RPD	-34%

BOOTH 2 EXHAUST FACE SAMPLES

	Chrome	Zinc	Total
M1L11	0.021	2.7	2.72
M1L11D	0.024	2.8	2.82
RPD	-13%	-4%	-4%
M1L19	0.039	7.1	7.14
M1L19D	0.034	3.8	3.83
RPD	14%	61%	60%
M2L11	0.036	1.1	1.14
M2L11D	0.039	NA	0.04
RPD	-8%	NA	-8%
M2L19	0.1	4.3	4.40
M2L19D	0.099	3.3	3.40
RPD	1%	26%	26%
M3L11	0.031	1.3	1.33
M3L11D	0.021	0.61	0.63
RPD	38%	72%	71%
M3L19	0.11	6.7	6.81
M3L19D	0.076	NA	NA
RPD	37%	NA	37%

BOOTH 3 EXHAUST FACE SAMPLES

	Chrome	Zinc	Total
M1L14	0.23	1.6	1.83
M1L14D	0.2	1.6	1.80
RPD	14%	0%	2%
M2L14	34	2.6	36.60
M2L14D	35	2.7	37.70
RPD	-3%	-4%	-3%
M3L14	No Data	No Data	No Data
M3L14D			
RPD	No Data	No Data	No Data

RSD OF NIOSH 7300 RPD ANALYSES
57%

AVG OF DENSITY RPD ANALYSES
70%

RPD analysis of duplicate NIOSH 7300 samples
Filename: QAQC; Directory: 123R5w\work\barstow\demotes
Worksheet: 7300RPD
Date: June 15, 1996

D.8.

BASELINE PAINTER VICINITY SAMPLES

	Chrome	Zinc	
B1M2P2	0.011		
B1M2P2D	0.011		
RPD	0%		

			Total
B2M1P1	0.007	0.15	0.16
B2M1P1D	0.010	0.30	0.31
RPD	-34%	-67%	-65%

			Total
B3M1P1	0.027	0.35	0.38
B3M1P1D	0.037	0.38	0.42
RPD	-31%	-8%	-10%

RECIRCULATION PAINTER VICINITY SAMPLES

	Chrome
B1M1P1	0.006
B1M1P1D	0.019
RPD	-104%

B1M3P1	0.004
B1M3P1D	0.014
RPD	-118%

		Zinc	Total
B2M1P1	0.002	0.46	0.46
B2M1P1D	0.002	0.07	0.07
RPD	0%	146%	145%
B2M2P2	0.022	0.12	0.14
B2M2P2D	0.004	0.00	0.01
RPD	133%	187%	178%
B3M1P1	0.027	0.15	0.18
B3M1P1D	0.002	0.00	0.00
RPD	174%	192%	189%

AVG xylene

COMPOUND	%REC LEVEL 1	LEVEL 1	LEVEL 1	LEVEL 1	LEVEL 1	AVG	%REC LEVEL 2	LEVEL 2	LEVEL 2	LEVEL 2	LEVEL 2	AVG
2-BUTANONE	78	83	80	83	82	81	83	83	84	84	85	84
ETHYL ACETATE	98	100	97	101	102	100	99	99	98	99	101	99
BUTYL ALCOHOL	46	36	37	38	50	41	54	55	47	45	54	51
MIBK	95	96	94	96	101	96	97	98	96	98	100	98
TOLUENE	102	103	102	104	107	104	102	102	101	104	104	103
BUTYL ACETATE	101	102	101	103	108	103	103	103	102	105	106	104
MIA-KETONE	90	91	90	92	97	92	94	94	93	95	96	94
PGME ACETATE	82	80	78	81	89	82	89	89	85	87	92	88
ETHYL BENZENE	98	98	98	100	103	99	98	97	97	100	100	98
m,p-XYLENE	101	1.1	100	102	107	82	101	101	100	103	103	102
o-XYLENE	94	93	93	95	99	95	94	95	93	96	97	95
1,3,5-TRIMETHYLBENZENE	102	102	102	104	108	104	103	103	102	105	105	104
1,2,4-TRIMETHYLBENZENE	95	95	95	97	101	97	96	96	95	98	98	97
HEXYL ACETATE	95	96	95	97	103	97	99	99	97	100	101	99
BENZYL ALCOHOL	16	12	12	13	17	14	21	23	18	17	21	20

COMPOUND	%REC LEVEL 3	LEVEL 3	LEVEL 3	LEVEL 3	LEVEL 3	AVG	AVG OVER SPIKED RANGE	CORRECTION FACTOR
2-BUTANONE	89	86	89	89	89	88	84	1.184
ETHYL ACETATE	100	101	100	99	100	100	100	1.004
BUTYL ALCOHOL	61	59	58	62	62	60	51	1.963
MIBK	105	98	96	98	99	99	98	1.022
TOLUENE	107	97	97	99	100	100	102	0.980
BUTYL ACETATE	110	100	100	102	103	103	103	0.968
MIA-KETONE	103	93	93	95	96	96	94	1.062
PGME ACETATE	99	94	89	93	94	94	88	1.136
ETHYL BENZENE	103	92	93	95	96	96	98	1.022
m,p-XYLENE	106	95	96	98	99	99	94	1.061
o-XYLENE	99	90	90	92	93	93	94	1.062
1,3,5-TRIMETHYLBENZENE	108	97	98	99	100	100	103	0.975
1,2,4-TRIMETHYLBENZENE	101	91	92	93	94	94	96	1.044
HEXYL ACETATE	104	95	95	96	98	98	98	1.020
BENZYL ALCOHOL	30	24	29	29	29	28	21 – NOT FOUND IN ANY SAMPLES	4.823

D-103

Poor recovery:
n-Butanol
Benzyl alcohol ✓ not present in pants used during test

D-84

NIOSH 1300 METHOD DETECTION LIMIT AND DESORPTION EFFICIENCY STUDY RESULTS

COMPOUND	AREA							MEAN	STD DEV	%RSD	RF	MDL µg/mL	TOTAL µg
2-BUTANONE	331,521	332,118	336,719	336,021	336,244	340,986	330,298	334,844	3,458	1.03	0.00031953	1.11	1.66
ETHYL ACETATE	229,331	230,268	234,167	233,022	233,437	235,974	229,005	232,172	2,464	1.06	0.00056126	1.38	2.07
BUTYL ALCOHOL	394,407	405,510	415,038	407,284	416,478	408,323	409,745	408,112	6,718	1.65	0.00027309	1.83	2.75
MIBK	440,257	459,697	471,969	458,267	477,963	455,477	474,210	462,549	12,164	2.63	0.00024402	2.97	4.45
TOLUENE	666,204	698,222	716,931	694,597	727,165	688,891	722,735	702,106	20,030	2.85	0.00016179	3.24	4.86
BUTYL ACETATE	352,692	370,045	380,266	367,932	385,903	364,931	384,537	372,329	11,092	2.98	0.00030478	3.38	5.07
MIA-KETONE	433,719	456,300	469,169	453,713	477,802	450,277	476,937	459,702	14,763	3.21	0.00024645	3.64	5.46
PGME ACETATE	266,971	280,811	288,706	279,076	293,862	277,007	293,487	282,846	9,051	3.20	0.00040167	3.64	5.45
ETHYL BENZENE	707,645	744,677	764,820	739,087	778,254	732,849	777,442	749,253	23,912	3.19	0.00015157	3.62	5.44
m,p-XYLENE	1,318,384	1,387,822	1,425,480	1,377,453	1,451,047	1,366,035	1,449,230	1,396,493	44,823	3.21	0.00016307	7.31	10.96
o-XYLENE	674,401	710,123	729,318	704,630	742,630	691,930	742,161	713,599	23,917	3.35	0.00015966	3.82	5.73
1,3,5-TRIMETHYLBENZENE	671,182	707,569	726,663	701,768	740,345	697,708	740,591	712,261	23,391	3.28	0.00016026	3.75	5.62
1,2,4-TRIMETHYLBENZENE	667,588	703,943	722,918	698,044	736,660	694,428	737,270	708,693	23,392	3.30	0.00016095	3.76	5.65
HEXYL ACETATE	436,183	459,949	472,453	456,194	481,336	454,110	481,795	463,146	15,271	3.30	0.00024706	3.77	5.66
BENZYL ALCOHOL	526,839	557,020	572,447	553,022	584,086	550,865	586,319	561,514	19,466	3.47	0.00020932	4.07	6.11

D-104

D-84

RPD analysis of duplicate NIOSH 1300 samples
Filename: QAQC; Directory: 123R5w\work\barstow\demotest
Worksheet: 1300RPD
Date: June 15, 1996

DUCT SAMPLES

	B1O3E	B1O3ED	RPD	B104R	B104RSD	RPD	B201E	B201ED	RPD	B302R	B302RED	RPD	B3O3R	B3O3RWD	RPD
MEK	26	21	21%	18	14	25%	26	31	-18%	2.6	2.8	-7%	2.4	2.3	4%
Ethyl acetate	0.29	0.25	15%	0.24	0.19	23%	0.13	0.19	-38%	*0.12*	0.27	-77%	0.25	0.27	-8%
n-Butanol	*0.12*	*0.12*	*0%*	*0.13*	*0.13*	*0%*	14	14	0%	2.2	2.3	-4%	0.65	0.62	5%
MIBK	52	41	24%	47	35	29%	24	20	18%	1.1	1.1	0%	1	0.94	6%
Toluene	64	50	25%	44	32	32%	34	27	23%	2.5	2.4	4%	0.74	0.69	7%
Butyl acetate	29	22	27%	20	14	35%	21	17	21%	1	1	0%	0.95	0.85	11%
MIAK	8.3	6.1	31%	5	3.6	33%	0.15	0.12	22%	*0.13*	*0.12*	8%	*0.12*	*0.12*	0%
PGMEA	*0.12*	*0.12*	*0%*	*0.13*	*0.13*	*0%*	0.13	0.11	17%	*0.13*	*0.12*	8%	*0.12*	*0.12*	0%
Ethyl benzene	30	23	26%	21	15	33%	13	10	26%	0.57	0.55	4%	0.55	0.48	14%
Xylenes	160	120	29%	110	80	32%	67	53	23%	3	2.9	3%	3	2.7	11%
TMB	6.3	4.9	25%	4.7	3.5	29%	12	9.7	21%	0.64	0.39	49%	0.5	0.45	11%
Hexyl acetate	9.3	7.2	25%	6.6	5	28%	17	13	27%	0.85	*0.12*	151%	0.83	0.74	11%
Benzyl alcohol	*0.12*	*0.12*	*0%*	*0.13*	*0.13*	*0%*	*0.13*	*0.11*	17%	*0.12*	*0.12*	0%	*0.12*	*0.12*	0%
TOTAL	386	296	26%	277	203	31%	229	195	16%	15	14	5%	11	10	8%

BASELINE PAINTER VICINITY SAMPLES

	B1O1P1BAS			B2O3P1BAS		
MEK	84	60	33%	5.50	4.30	24%
Ethyl acetate	0.34	0.25	31%	0.30	0.39	-26%
n-Butanol	*0.13*	*0.13*	0%	4.90	4.00	20%
MIBK	120	130	-8%	1.70	1.30	27%
Toluene	160	140	13%	1.80	1.50	18%
Butyl acetate	87	71	20%	0.99	0.79	22%
MIAK	240	260	-8%	*0.13*	*0.13*	0%
PGMEA	*0.13*	*0.13*	0%	*0.13*	*0.13*	0%
Ethyl benzene	77	50	43%	1.10	0.87	23%
Xylenes	360	290	22%	6.30	4.90	25%
TMB	16	12	29%	1.60	1.20	29%
Hexyl acetate	20	15	29%	0.72	0.57	23%
Benzyl alcohol	*0.13*	*0.13*	0%	*0.13*	*0.13*	0%
TOTAL	1165	1029	12%	25	20	22%

RSD OF NIOSH 1300 RPD ANALYSES
18.32%

AVG OF NIOSH 1300 RPD ANALYSES
17.83%

RECIRCULATION PAINTER VICINITY SAMPLES

	B1O1P2			B1O2P1			B2O2P2		
MEK	65.00	60.00	8%	31	33	-6%	13	24	-59%
Ethyl acetate	24.00	0.18	197%	0.23	0.23	0%	0.14	0.13	7%
n-Butanol	0.13	0.12	8%	0.11	0.11	0%	2.2	2.9	-27%
MIBK	160.00	150.00	6%	150	150	0%	8.3	17	-69%
Toluene	150.00	150.00	0%	140	140	0%	11	22	-67%
Butyl acetate	62.00	59.00	5%	48	48	0%	5.1	10	-65%
MIAK	23.00	22.00	4%	3.3	3.1	6%	0.14	0.13	7%
PGMEA	0.13	0.12	8%	0.11	0.11	0%	0.14	0.13	7%
Ethyl benzene	65.00	62.00	5%	59	55	7%	3.6	7.3	-68%
Xylenes	340.00	340.00	0%	310	300	3%	18	37	-69%
TMB	13.00	13.00	0%	11	11	0%	2	3.9	-64%
Hexyl acetate	16.00	17.00	-6%	7.9	7.9	0%	2.5	5.4	-73%
Benzyl alcohol	0.13	0.13	0%	0.11	0.11	0%	0.14	0.13	7%
TOTAL	918	874	5%	761	749	2%	66	130	-65%

D.8.4

RPD analysis of duplicate NIOSH 1300 samples
Filename: QAQC; Directory: 123R5w\work\barstow\demotest
Worksheet: 1300RPD
Date: June 15, 1996

BOOTH 1 EXHAUST FACE SAMPLES

	O1L8	O1L8D	RPD	O1L31	O1L31D	RPD	O2L8	O2L8D	RPD	O2L31	O2L31D	RPD	O3L8	O3L8D	RPD	O3L31	O3L31D
MEK	27	24	12%	32	22	37%	16	13	21%	15	11	31%	13	14	-7%	16	17
Ethyl acetate	0.13	0.14	-7%	0.34	0.22	43%	0.22	0.19	15%	*0.2*	0.2	0%	0.13	0.13	0%	0.13	0.13
n-Butanol	*0.13*	*0.14*	*-7%*	*0.14*	*0.14*	*0%*	*0.11*	*0.11*	0%	*0.11*	*0.12*	-9%	0.13	0.13	0%	0.13	0.13
MIBK	61	54	12%	93	50	60%	59	50	17%	67	40	50%	46	68	-39%	79	70
Toluene	73	65	12%	130	59	75%	67	57	16%	69	46	40%	52	81	-44%	75	76
Butyl acetate	33	29	13%	51	27	62%	27	23	16%	28	18	43%	21	33	-44%	24	31
MIAK	9.2	8	14%	14	7.8	57%	3.7	3.1	18%	*3.9*	*2.6*	40%	*2.6*	*4.5*	-54%	3.7	4.6
PGMEA	*0.18*	*0.14*	*25%*	*0.14*	*0.14*	*0%*	0.11	0.11	0%	*0.11*	*0.12*	-9%	*0.13*	*0.13*	0%	0.13	0.13
Ethyl benzene	34	31	9%	55	32	53%	33	28	16%	35	24	37%	25	41	-48%	29	37
Xylenes	180	160	12%	300	160	61%	180	150	18%	190	120	45%	130	220	-51%	190	200
TMB	7.8	6.9	12%	12	7.1	51%	7.2	6.2	15%	7.7	4.5	52%	5.5	9.3	-51%	6.6	8.2
Hexyl acetate	11	9.4	16%	17	9.8	54%	6	5.1	16%	6.4	*3.9*	49%	4.6	7.9	-53%	5.7	7.2
Benzyl alcohol	*0.13*	*0.14*	*-7%*	*0.14*	*0.14*	*0%*	*0.11*	*0.11*	0%	*0.11*	*0.12*	-9%	*0.13*	*0.13*	0%	0.13	0.13
TOTAL	437	388	12%	705	375	61%	399	336	17%	423	271	44%	300	479	-46%	430	452

BOOTH 2 EXHAUST FACE SAMPLES

	O1L11	O1L11D	RPD	O1L19	O1L19D	RPD	O2L11	O2L11D	RPD	O2L19	O2L19D	RPD	O3L11	O3L11D	RPD	O3L19	O3L19D
MEK	9.7	12	-21%	38	37	3%	8.5	8.2	4%	23	23	0%	18	18	0%		No Data
Ethyl acetate,	*0.42*	*0.19*	*75%*	*0.11*	*0.11*	*0%*	*0.13*	*0.13*	*0%*	*0.13*	*0.16*	*-21%*	*0.15*	*0.14*	*7%*		No Data
n-Butanol	1.7	5.5	-106%	14	15	-7%	9.1	9	1%	8.7	8.5	2%	10	10	0%		No Data
MIBK	8.6	10	-15%	30	31	-3%	8.7	8.6	1%	19	19	0%	17	17	0%		No Data
Toluene	12	14	-15%	39	41	-5%	13	13	0%	21	21	0%	21	20	5%		No Data
Butyl acetate	7	8.3	-17%	26	27	-4%	5.9	5.7	3%	12	12	0%	43	43	0%		No Data
MIAK	*0.11*	*0.12*	*-9%*	*0.11*	*0.11*	*0%*	*0.13*	*0.13*	*0%*	*0.13*	*0.14*	*-7%*	*0.13*	*0.13*	*0%*		No Data
PGMEA	*0.11*	*0.12*	*-9%*	*0.11*	*0.11*	*0%*	*0.13*	*0.13*	*0%*	*0.13*	*0.14*	*-7%*	*0.13*	*0.13*	*0%*		No Data
Ethyl benzene	5	5.9	-17%	17	18	-6%	4.5	4.4	2%	9.5	9.5	0%	5	5	0%		No Data
Xylenes	25	29	-15%	85	90	-6%	22	22	0%	47	46	2%	34	33	3%		No Data
TMB	2.7	3.2	-17%	13	14	-7%	3.5	3.3	6%	4.7	4.7	0%	3.9	3.9	0%		No Data
Hexyl acetate	5.9	6.8	-14%	20	21	-5%	4.3	4	7%	6.8	*6.9*	-1%	7.1	7.1	0%		No Data
Benzyl alcohol	*0.11*	*0.12*	*-9%*	*0.11*	*0.11*	*0%*	*0.13*	*0.13*	*0%*	*0.13*	*0.14*	*-7%*	*0.13*	*0.13*	*0%*		No Data
TOTAL	78	95	-19%	282	294	-4%	80	79	2%	154	153	1%	160	158	1%		

BOOTH 3 EXHAUST FACE SAMPLES

	O1L14	O1L14D	RPD	O2L14	O2L14D	RPD	O3L14	O3L14D	RPD
MEK	19	18	5%	65	61	6%	68	54	23%
Ethyl acetate	*0.14*	*0.13*	7%	*0.3*	*0.65*	*-74%*	*0.21*	*0.2*	*5%*
n-Butanol	29	26	11%	29	27	7%	35	31	12%
MIBK	12	11	9%	34	33	3%	36	35	3%
Toluene	22	21	5%	44	43	2%	48	47	2%
Butyl acetate	11	10	10%	21	20	5%	23	22	4%
MIAK	*0.13*	*0.13*	*0%*	*0.18*	*0.19*	*-5%*	*0.16*	*0.15*	*6%*
PGMEA	*0.13*	*0.13*	*0%*	*0.13*	*0.13*	*0%*	*0.13*	*0.13*	*0%*
Ethyl benzene	6.6	6	10%	17	17	0%	18	17	6%
Xylenes	35	32	9%	90	87	3%	92	90	2%
TMB	4.6	0.4	168%	8	11	-32%	9.3	9	3%
Hexyl acetate	10	9.4	6%	11	0.13	195%	10	10	0%
Benzyl alcohol	0.13	*0.13*	0%	*0.13*	*0.14*	*-7%*	*0.13*	*0.13*	0%
TOTAL	150	134	11%	320	300	6%	340	316	7%

Items indicated in italics are at or below the method detection limits

D-8.4

BARSTOW MSDS LISTED ORGANICS		
Coating Type	Ingredient	% by wt
Thinner	MEK	30.5
	Hexyl Acetate	41.0
	Toluene	10.5
	m-Butyl Acetate	11.0
	Xylene	7.0
Carc Green	Xylene	15
	MIBK	5
	Toluene	5
	n-Butyl Acetate	<5
	Solvent Naptha, Heavy	5
	Solvent Naptha, Light	<5
Wash Primer	IPA	60
	Ethyl Alcohol	5
	n-Butyl Alcohol	15
Primer		
Comp A	n-Butyl Alcohol	10
	C8&10 Aromatic HC	10
Comp B	Nitro-ethane	15
	C8&10 Aromatic HC	<5

ANALYTICAL LABORATORY MULTIPLE LEVEL SPIKE AND RECOVERY ANALYSIS RESULTS

Method	Target Analyte	Spiking Level (ug)	Recovery (ug)	Recovery (%)	
EPA 0061	Hexavalent Cr	0.500	0.515	103%	Accuracy ± 3%
		2.50	2.50	100%	
		2.50	2.45	98%	
		5.00	4.87	97%	
EPA 0060	Total Chromium	25.0	25.8	103%	Accuracy ± 9% avg =
		10.0	10.9	109%	
		10.0	10.9	109%	
		3.0	3.06	102%	
NIOSH 7300	Total Chromium	0.80	0.693	87%	Accuracy = ± 4%
		5.0	4.82	96%	
		5.0	4.81	96%	
		30.0	30.5	102%	
NIOSH 7300	Zinc	1.0	0.967	97%	Accuracy = ± 7%
		100	104	104%	
		100	105	105%	
		1000	1067	107%	
OSHA 42	HDI	0.10	0.12	120%	Accuracy = ± 27%
		0.51	0.39	76%	
		0.51	0.37	73%	
		2.55	2.09	82%	
EPA Draft	HDI	2.0	2.5	125%	Accuracy ± 44%
		10.2	6.5	64%	
		51.0	32.0	63%	
		51.0	28.5	56%	

AVG 79%

ISOCYANATES

RPD analysis of duplicate OSHA 42 and NIOSH 7903 samples
Filename: QAQC; Directory: 123R5w\work\barstow\demotest
Worksheet: 42 7903RPD
Date: June 15, 1996
(Note: these samples collected in ducts and painter vicinity only)

D.8.5

NIOSH 7903 RESULTS
ALL RESULTS ARE NON DETECT, THUS NO RPD ANALYSIS CAN BE DONE
There were 2 duplicate sets of results obtained for the exhaust ducts
There were 5 duplicate sets of results obtained in the painter vicinity

OSHA 42 RESULTS
BOOTH 1 PAINTER VICINITY SAMPLES

	HDI	RSD OF RPD PRECISION RANGE:
B1I3P1BAS	0.025	8%
B1I3P1BAS	0.02	
RPD	0.22	
B1I1P2	0.013	
B1I1P2D	0.017	
RPD	-0.27	
B1I3P2	0.023	
B1I3P2D	0.021	
RPD	0.09	

BOOTH 2 PAINTER VICINITY SAMPLES

	HDI	
B2I1P2BAS	0.0028	
B2I1P2BAS	0.0026	
RPD	0.07	
B2I1P2	0.0011	
B2I1P2D	0.0013	
RPD	-0.17	
B2I2P1	ND	
B2I2P1D	ND	
RPD	0%	DON'T USE IN RSD ANALYSIS

BOOTH 3 PAINTER PAINTER VICINITY SAMPLES

	HDI	
B3I2P1BAS	ND	
B3I2P1BAS	ND	
RPD	0%	DON'T USE IN RSD ANALYSIS
B3I2P1	ND	
B3I2P1D	ND	
RPD	0%	DON'T USE IN RSD ANALYSIS

COMPOUND		%REC						AVG OVER SPIKED RANGE
PHOSPHORIC ACID	3.75	LEVEL 1	LEVEL 1	LEVEL 1	LEVEL 1	LEVEL 1	AVG	
	19	102	99	105	81	119	101.2	82
		%REC						
PHOSPHORIC ACID	7.50	LEVEL 2	LEVEL 2	LEVEL 2	LEVEL 2	LEVEL 2	AVG	
		91	67	82	55	68	72.6	
		%REC						
PHOSPHORIC ACID	15.0	LEVEL 3	LEVEL 3	LEVEL 3	LEVEL 3	LEVEL 3	AVG	
		92	70	72	58	68	72	

=> Accuracy = 18%

D-110

D.8.6

Paint Data QA/QC Backup: density and percent volatile
Filename: QAQC; Directory: 123R5w\work\barstow\demotest
Worksheet: Paint data
Date: June 15, 1996

D.8.7

DENSITY RESULTS

		density (lb/gal)
Topcoat	Trial 1	10.9
	Trial 2	10.9
	RPD	0%
	MSDS	10.90
	Accuracy	100%
Thinner	Trial 1	6.89
	Trial 2	6.95
	RPD	-1%
	MSDS	7.09
	Accuracy	98%
Epoxy Primer Pigment	Trial 1	13.7
	Trial 2	13.8
	RPD	-1%
	MSDS	14.24
	Accuracy	97%
Epoxy Primer Catalyst	Trial 1	9.44
	Trial 2	9.22
	RPD	2%
	MSDS	9.4
	Accuracy	98%
Acid Wash Pigment	Trial 1	7.02
	Trial 2	7.04
	RPD	-0%
	MSDS	No Data
	Accuracy	NA
Acid Wash Acid Soln	Trial 1	9.44
	Trial 2	9.22
	RPD	2%
	MSDS	No Data
	Accuracy	NA
Acid Wash Alcohol	Trial 1	7.67
	Trial 2	7.67
	RPD	0%
	MSDS	No Data
	Accuracy	NA

RSD OF DENSITY RPD ANALYSES
1%

~~**AVG OF DENSITY RPD ANALYSES**~~
~~0.86%~~

RSD OF VOC CONENT RPD ANALYSES
3%

~~**AVG OF DENSITY RPD ANALYSES**~~
~~2.40%~~

AVG accuracy 98%

VOC CONTENT RESULTS

		% Volatile
Topcoat	Trial 1	25%
	Trial 2	27%
	RPD	-8%
	MSDS	32%
	Accuracy	83%
Thinner	Trial 1	100%
	Trial 2	100%
	RPD	0%
	MSDS	100%
	Accuracy	100%
Epoxy Primer Pigment	Trial 1	9%
	Trial 2	ND
	RPD	ND
	MSDS	10.5%
	Accuracy	86%
Epoxy Primer Catalyst	Trial 1	9.44
	Trial 2	9.22
	RPD	2%
	MSDS	9.4
	Accuracy	98%
Acid Wash Pigment	Trial 1	7.02
	Trial 2	7.04
	RPD	-0%
	MSDS	No Data
	Accuracy	NA
Acid Wash Acid Soln	Trial 1	9.44
	Trial 2	9.22
	RPD	2%
	MSDS	No Data
	Accuracy	NA

Avg accuracy: 92%

D.8.7

Date: 1/24/96
Project: Barstow

PAINT SAMPLE DENSITY
Test Performed by: Arlene Lillie

Trial	Coating	Mass Coating Vial & Label (g)	Mass Water Vial & Label (g)	Mass Vial & Label (g)	Measured Volume Water (mL)	Calculated Volume Water (mL)	Coating Density (g/mL)	Coating Density (lb/gal)	MSDS Density (lb/gal)
1	Topcoat	79.1	66.7	25.9	40.9	40.8	1.30	10.9	10.9
2	Topcoat	78.4	66.2	25.9	40.3	40.3	1.30	10.9	
1	Thinner	59.6	66.7	25.9	41.8	40.8	0.826	6.89	7.09
2	Thinner	59.9	66.7	25.9	41.0	40.8	0.833	6.95	
1	Primer	92.8	66.6	25.9	40.6	40.7	1.64	13.7	14.24
2	Primer	97.5	69.0	25.9	43.0	43.1	1.66	13.8	
1	Catalyst	73.8	68.2	25.9	42.3	42.3	1.13	9.44	9.40
2	Catalyst	70.9	66.6	25.9	41.0	40.7	1.11	9.22	
1	Acid Wash Solid	60.6	67.1	25.9	41.6	41.2	0.842	7.02	7.4 (mixed)
2	Acid Wash Solid	60.7	67.1	25.9	41.4	41.2	0.845	7.04	
1	Alcohol	58.2	66.7	25.9	41.0	40.8	0.792	6.60	
2	Alcohol	59.9	68.9	25.9	43.0	43.0	0.791	6.59	
1	Acid	60.5	63.5	25.9	38.0	37.6	0.920	7.67	
2	Acid	61.2	64.5	25.9	38.7	38.6	0.915	7.62	

Vial used for water: I-CHEM 40 mL, clear, borosilicate

Vial	Mass w/Label (g)	
a	25.8	
b	26.1	
c	25.8	
d	25.8	
e	25.9	actual vial used
AVG	25.9	

Date: 1/24/96
Project: Barstow

PAINT SAMPLE VOC CONTENT
Test Performed by: Arlene Lillie

Tray No.	Tray Mass (g)	Coating	Volume (mL)	Mass Tray & Sample (g) Prior to Drying	Mass Tray & Sample (g) After Drying	1/24/94 Time in	1/24/94 Time Out	Change in Mass (g)	%VOC (by wt.)	MSDS %VOC (by wt.)
1	1.1									
		Primer	4							
		Catalyst	1							
		Water	8							
		Mass to Oven *		15.9	7.2	11:00 AM	1/26/96 3:30 PM	NA	NA	10.5%
2	1.1									
		Primer	2	4.2						
		Catalyst	0.5	4.8						
		Water	4	8.6						
		Mass to Oven *		8.6	4.1	11:10	1/26/96 3:30 PM	(-H2O) 0.7	9%	
3	1.1									
		Acid Wash Solid	4	4.5						
		Alcohol	2	5.5						
		Acid	1	7.1						
		Mass to Oven *		6.9	1.9	11:30	1/25/94 11:30	5.0	86%	80%
4	1.1									
		Acid Wash Solid	4	4.5						
		Alcohol	2	5.5						
		Acid	1	7.2						
		Mass to Oven *		7.0	1.9	11:40	1/25/94 11:40	5.1	86%	
5	1.1	Thinner	10	9.4	1.1	11:41	11:41	8.3	100%	100%
6	1.1	Thinner	10	9.4	1.1	11:43	11:45	8.3	100%	
7	1.1	Topcoat	10	13.9	10.7	11:46	1/26/96 3:30 pm	3.2	25%	32%
8	1.1	Topcoat	10	13.6	10.2	11:52	3:30 pm	3.4	27%	

* Mass of mixed sample for drying
note: Some measured sample lost to stirrer from trays 3 and 4

D.8.7

FID QA/QC results
drift and linearity

Booth 1	Test 1			Test 2			Test 3			Test 4			Test 5			Test 6		
Linearity:	North	South	Exhaust	North	South	Exhaust	North	South	Exhaust	North	South	Exhaust	North	South	Exhaust	North	South	Exhaust
Mid	0.4%	0.3%	7.8%	0.4%	0.3%	7.8%	2.9%	1.8%	3.2%	2.9%	1.8%	3.2%	2.0%	4.1%	1.5%	2.0%	4.1%	1.5%
Average	2.7%																	
Zero drift:	3.3%	0.6%	1.5%	1.5%	0.0%	3.0%	0.3%	0.3%	4.2%	3.3%	2.1%	0.3%	1.2%	0.6%	0.3%	2.4%	1.8%	1.2%
	1.6%																	

Booth 2																		
Linearity:	North	South	Exhaust	North	South	Exhaust	North	South	Exhaust	North	South	Exhaust	North	South	Exhaust	North	South	Exhaust
Mid	2.6%	0.0%	4.2%	2.7%	1.6%	0.7%	4.2%	0.5%	0.7%	3.2%	1.8%	1.8%	3.4%	1.3%	0.9%	2.6%	0.7%	0.0%
	1.8%																	
Zero drift:	0.0%	0.0%	0.9%	0.0%	0.3%	0.3%	0.0%	0.6%	0.9%	0.0%	0.3%	0.6%	0.0%	0.3%	1.5%	0.0%	0.3%	0.9%
	0.4%																	

Booth 3																		
Linearity:	North	South	Exhaust	North	South	Exhaust	North	South	Exhaust	North	South	Exhaust	North	South	Exhaust	North	South	Exhaust
Mid	2.8%	6.6%	7.2%	2.7%	6.2%	8.9%	3.3%	5.3%	2.8%	4.0%	5.3%	5.2%	4.5%	5.3%	4.4%	3.9%	5.3%	5.2%
	4.9%																	
Zero drift:	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.3%	0.0%	0.0%	0.0%	1.2%	0.0%	0.0%	0.0%	0.0%	0.3%	0.9%
	0.2%																	

Average mid span linearity: 3.1%
Average zero drift: 0.7%

← Avg precision

Linearity range:

precision range 0.7% - 8.9%

D.8.9

EPA STANDARD STANDARD ANALYTICAL RESULTS SUMMARY

Method	Sample ID	Target Analyte	Mass (ug)
EPA 0061	Hexavalent Chromium Solution	Chromium VI	9.60 E+5 ug/L *
EPA 0060	Chromium Solution	Total Chromium	8610
EPA 0061	Zinc Solution	Zinc	Not analyzed because samples were analyzed for Cr VI only
EPA Draft	HDI Solution	HDI	Sample evaporated at laboratory, no analysis performed
NIOSH 7903	Phosphoric Acid Solution	H3PO4	28,400
NIOSH 1300	Organic Compound Solution	MEK	10307
		Ethyl Acetate	11680
		Butyl Alcohol	11620
		MIBK	< 7.50
		Toluene	11307
		Butyl Acetate	11940
		MIAK	< 7.50
		PGMEA	18427
		Ethyl Benzene	12620
		Xylene	9393
		Trimethyl Benzene	11200
		Hexyl Acetate	10727
		Benzyl Alcohol	< 7.50
EPA 25A		Propane	97 ppm

* Laboratory did not measure volume prior to analysis. Approximate volume was 9 - 10 ml.

D.8.9

EPA SAMPLING TRAIN/MEDIA SPIKE ANALYTICAL RESULTS SUMMARY

Method	Sample #	Target Analyte	Mass (ug)
EPA 0061	B2C10NR	Hexavalent Chromium	0.561
	B2C10SR	Hexavalent Chromium	0.369
EPA 0060	B1M10NR	Total Chromium	1.75
	B1M10SR	Total Chromium	1.96
NIOSH 7300	B2M4P1	Total Chromium	13.1
		Zinc	24.8
	B2M4P2	Total Chromium	9.14
		Zinc	2.41
OSHA 42	B2I4P1	HDI	< 0.06
	B2I4P2	HDI	0.19
EPA Draft	B2I10NR	HDI	16.2
	B2I10SR	HDI	14.9
NIOSH 7903	B2PH4P1a	Phosphoric Acid	9.87
	B2PH4P1b *	Phosphoric Acid	145
NIOSH 1300	B2O4P1a	MEK	122
		Ethyl Acetate	183
		Butyl Alcohol	120
		MIBK	< 7.50
		Toluene	173
		Butyl Acetate	192
		MIAK	165
		PGMEA	< 7.50
		Ethyl Benzene	203
		Xylene	144
		Trimethyl Benzene	165
		Hexyl Acetate	173
		Benzyl Alcohol	< 7.50
	B2O4P1b *	MEK	64.6
		Ethyl Acetate	195
		Butyl Alcohol	Not reportable
		MIBK	< 7.50
		Toluene	175
		Butyl Acetate	102
		MIAK	111
		PGMEA	< 7.50
		Ethyl Benzene	215
		Xylene	150
		Trimethyl Benzene	170
		Hexyl Acetate	183
		Benzyl Alcohol	< 7.50

* These tubes were not analyzed with original group of samples

Analytical results of EPA field spike and standard sample analyses
Filename: QAQC; Directory: 123R5w\work\barstow\demotest
Worksheet: EPA SPIKE
Date: June 17, 1996

D-8.9

TRAIN SPIKE RESULTS

			Uncorrected Results (ug)	% recovery	Corrected Results (ug)
EPA 0061	B2C10NR	Hex chrome	0.56	103%	0.54
	B2C10SR	Hex chrome	0.4	103%	0.38
EPA 0060	B1M10NR	Total Chrome	1.75	102%	1.72
	B1M10SR	Total Chrome	1.96	102%	1.92
NIOSH 7300	B2M4P1	Total Chrome	13.1	96%	13.6
		Zinc	24.8	97%	25.6
	B2M4P2	Total Chrome	9.14	96%	9.52
		Zinc	2.41	97%	2.48
OSHA 42	B2I4P1	HDI	< 0.06	120%	0.05
	B2I4P2	HDI	0.19	120%	0.16
EPA Draft	B2I10NR	HDI	16.2	64%	25.3
	B2I10SR	HDI	14.9	64%	23.3
NIOSH 7903	B2PH4P1a	Phosphoric acid	9.87	73%	13.6
	B2PH4P1b	Phosphoric acid	145	72%	201
NIOSH 1300	B2O4P1a	MEK	122	82%	149
		Ethyl acetate	183	100%	183
		n-Butanol	120	41%	293
		MIBK	< 7.5	96%	< 7.8
		Toluene	173	104%	166
		Butyl Acetate	192	103%	186
		MIAK	165	92%	179
		PGMEA	< 7.5	82%	< 9.1
		Ethyl benzene	203	99%	205
		Xylene	144	89%	162
		TMB	165	104%	159
		Hexyl Acetate	173	97%	178
		Benzyl Alcohol	< 7.5	14%	< 53.6
	B2O4P1b1	MEK	64.6	82%	78.8
		Ethyl acetate	195	100%	195
		n-Butanol	ND	41%	0
		MIBK	< 7.5	96%	7.81
		Toluene	175	104%	168
		Butyl Acetate	102	103%	99
		MIAK	111	92%	121
		PGMEA	< 7.5	82%	9.15
		Ethyl benzene	215	99%	217
		Xylene	150	89%	169
		TMB	170	104%	163
		Hexyl Acetate	183	97%	189
		Benzyl Alcohol	< 7.5	14%	53.6

Note that the samples indicated in boldface were not analyzed at the same time as the field samples. These samples were labled such that the analytical laboratory thought they were backup (second) tubes. When this oversight was noted 2 months later, these samples were analyzed immediately. However, it appears that the time delay did have an impact on the results; for example, it appears that some evaporation of the NIOSH 1300 sample occurred

Analytical results of EPA field spike and standard sample analyses
Filename: QAQC; Directory: 123R5w\work\barstow\demotest
Worksheet: EPA SPIKE
Date: June 17, 1996

D.8.9

ANALYTICAL RESULTS OBTAINED FOR STANDARDS SUBMITTED BY EPA

EPA 0061	Hex chrome*	9.6 E+5 ug/L
EPA 0060	Total Chrome	8610 ug
	Zinc **	Not analyzed
EPA Draft	HDI	No results
NIOSH 7903	Phosphoric acid	28.4 mg
NIOSH 1300	MEK	10.3 mg
	Ethyl acetate	11.7 mg
	n-Butanol	11.6 mg
	MIBK	< 7.5 mg
	Toluene	11.3 mg
	Butyl Acetate	11.9 mg
	MIAK	< 7.5 mg
	PGMEA	18.4 mg
	Ethyl benzene	12.6 mg
	Xylene	9.39 mg
	TMB	11.2 mg
	Hexyl Acetate	10.7 mg
	Benzyl Alcohol	< 7.5 mg
EPA Method 25A	Propane	97 ppm

* The analytical laboratory did not measure the sample volume prior to analysis, thus the total mass found in the sample could not be reported. However, it is estimated that the initial volume was approximately 9 - 10 ml.

** The zinc standard was analyzed with the hexavalent chrome standard by the laboratory performing the Booth 2 and 3 Method 0061 analyses. This is because zinc occurs only in combination with the hexavalent chrome found in the wash primer (which is used only in Booths 2 and 3), and not with the trivalent chrome found in the topcoat material (used only in booth one). However, due to errors made by the field sampling crew, the Method 0061 train fractions collected from the Booth 2 and 3 sampling efforts were were not sufficiently recoverd to allow analysis for total chrome and zinc, thus the Method 0061 analyses performed on the field samples did not include total chrome or zinc.

APPENDIX E

PRE-RETROFIT CHARACTERIZATION TEST REPORT

Included in this appendix is a summary of the results of the Pre-Retrofit Characterization Study conducted in the Fall of 1995. The data define the premodification emissions and flow characteristics of the booth just prior to modification.

PRE-RETROFIT CHARACTERIZATION STUDY RESULTS

A characterization study of the Booth 1 operating conditions was conducted in August 1995, just before Booth 1 modification efforts were initiated. The purpose of this Pre-Retrofit Characterization Study was to confirm that Booth 1 operations did not change significantly since completion of the Phase 1 Baseline Characterization tests in the Fall of 1993. To confirm this assumption, the Pre-Retrofit Study data were evaluated with respect to the Baseline Study results, and a comparison analysis was performed. The comparative analysis targeted Booth 1 exhaust flow rate, exhaust face stratification, and VOC release rates. This section contains a brief summary of the comparison results, followed by a description of the test matrix. The last section provides a discussion of how the comparison analysis was performed, and a detailed analysis of the comparison results.

Summary of Comparison Study Results

The results of the comparison analysis indicate that virtually no difference was found in the exhaust face concentration profile at the split heights derived from the Phase I data. One can therefore infer from this result that the Phase I split-height calculations are still valid. Similarly, the difference in flow rates for the Baseline Study and the Pre-Retrofit Study was negligible. There were some differences found in the organic concentration results, but the variability noted was within an acceptable range. The overall results of the comparison study indicate that Booth 1 operations have remained substantially unchanged since the Baseline Study was conducted.

Pre-Retrofit Study Test Matrix and Sampling Results

Four measurements were taken during the Pre-Retrofit Study: exhaust flow rates, continuous organic concentration emissions, coating usage rates, and particulate concentration stratification at the north and south exhaust faces. Flow rates were measured in accordance with EPA Method 2, organic concentrations were determined via EPA Method 25A, and exhaust face particulate concentrations were measured using NIOSH Method 500. The NIOSH 500 measurements were collected using a 2 dimensional sampling grid located directly in front of the exhaust face. At each exhaust face (north and south), particulate sample was collected at the centerpoint of each of the 32 filter panels that comprise the exhaust face.

The results of the Pre-Retrofit Study are summarized in Table E-1, which indicates average particulate concentrations determined at each row of the exhaust face, as well as coating usage, organic concentrations, and flow rate data. The average and peak organic concentrations measured during each test are reported in units of parts per million (ppm) as carbon.

Detailed Analysis of Comparison Study Results

The comparative analysis was performed to determine whether or not Booth 1 operating conditions had changed significantly since the Baseline Study was completed. The comparative analysis targeted exhaust flow rate, particulate concentration profile (stratification), and continuous organic concentration data; each of these are discussed separately.

Table E-1. Pre-Retrofit Characterization Study Results

Test No.	Particulate (mg/m^3_{av})			Coating Usage (lb)	Organic (ppm as C)	Flow Rate $(ft^3/min)_{dry\ std}$
	Row	North	South			
1	1	33.4	15.6	North Paint Pot	North Duct	North Duct
	2	57.6	17.0	Thinner: 3.79	Peak: 1572	26,986
	3	66.4	30.9	Topcoat: 81.4	Avg: 510	
	4	76.6	20.2			
	5	65.2	41.6	South Paint Pot:	South Duct	South Duct
	6	62.5	61.1	Thinner: 1.49	Peak: 918	26,313
	7	115.0	89.6	Topcoat: 31.9	Avg: 180	
	8	65.0	48.1			
2	1	24.0	19.0	North Paint Pot	North Duct	North Duct
	2	38.6	18.4	Thinner: 2.23	Peak: 969	24,478
	3	45.0	27.2	Topcoat: 47.9	Avg: 498	
	4	50.3	20.3			
	5	57.0	49.5	South Paint Pot:	South Duct	South Duct
	6	58.0	52.4	Thinner: 1.63	Peak: 657	23,847
	7	75.0	80.8	Topcoat: 35.9	Avg: 261	
	8	43.4	56.3			
3	1	18.0	21.0	North Paint Pot	North Duct	North Duct
	2	37.2	20.5	Thinner: 4.01	Peak: 1272	24,246
	3	50.0	23.6	Topcoat: 86.9	Avg: 621	
	4	61.4	22.9			
	5	54.9	61.8	South Paint Pot:	South Duct	South Duct
	6	57.9	64.6	Thinner: 1.86	Peak: 786	24,130
	7	53.0	87.0	Topcoat: 40.8	Avg: 327	
	8	43.1	70.6			

(continued)

Table E-1 (continued)

Test No.	Particulate (mg/m^3_{av})			Coating Usage (lb)	Organic (ppm as C)	Flow Rate $(ft^3/min)_{dry\ std}$
	Row	North	South			
4	1	28.3	20.0	North Paint Pot	North Duct	North Duct
	2	25.8	28.8	Thinner: 3.19	Peak: 1344	22,631
	3	23.4	29.4	Topcoat: 68.7	Avg: 570	
	4	48.6	27.9			
	5	49.2	66.2	South Paint Pot:	South Duct	South Duct
	6	59.8	62.7	Thinner: 1.26	Peak: 873	24,453
	7	53.0	71.0	Topcoat: 27.2	Avg: 402	
	8	40.3	75.9			

Flow Rate Variations -The Booth 1 exhaust stacks are configured such that some cyclonic flow exists at the flow rate measurement location. Therefore, the flow rate data from both test series were corrected for cyclonic flow to the maximum extent possible. The results of a comparison analysis of the flow rate data collected from both test series is summarized in Table E-2. Note that the ambient temperature during the Pre-Retrofit Study was significantly higher than during the Baseline Study, thus it is appropriate to base the flow rate comparative analysis based on actual, rather than standardized, flow rate data. Therefore, Table E-2 was developed using actual volumetric flow rates measured in the north and south exhaust stacks. The percent difference between the average flow rates measured during the two test series is less than 10%, which indicates that Booth 1 operations have not changed significantly since the Baseline Study data was collected.

Particulate Concentration Profile - A key factor considered during in the Phase 1 partition height calculations was the hazardous constituent concentration profile at the exhaust face. Therefore, an objective of the Pre-Retrofit Study was to assess whether or not the exhaust face concentration profile had changed; particular emphasis was placed on the percent of the material found below the selected partition height. The Phase 1 calculations indicated that the partition height should be located between the third and fourth row of filters at the north and south exhaust faces. Therefore, the analysis compared the percent of particulate found below each of these heights measured during the Baseline Study to the same values obtained from the Pre-Retrofit Study. The results of this comparative analysis are summarized in Table E-3.

Table E-2. Exhaust Flow Rate Data Comparative Analysis Results

	Baseline Study (ft^3/min_{actual})			Pre-Retrofit Study (ft^3/min_{actual})		
Test	North	South	Total	North	South	Total
1	29,183	29,182	58,365	29,118	28,392	57,510
2	29,423	30,167	59,590	26,553	25,869	52,422
3	29,402	27,827	57,229	25,788	25,664	51,452
4	29,575	28,797	58,372	24,530	26,526	51,056
Average:			58,389	Average:		53,110
Difference: 9%						

Table E-3. Particulate Stratification Data Comparative Analysis Results

	% Particulate Below Row Centerpoint			
	North		South	
Pre-Retrofit Study	Row 3	Row 4	Row 3	Row 4
Test 1	71	57	80	74
Test 2	73	60	80	74
Test 3	72	56	83	76
Test 4	76	62	80	72
Average	73	59	81	74
Relative standard deviation (%)	2.9	4.7	2.4	2.2
Baseline Study				
Test 1	65	50	84	68
Test 2	67	53	67	51
Average	66	52	60	76
Relative percent difference (%)	5.8	3.0	28	22
Comparison: Baseline Study data vs. Pre-Retrofit Study data (Percent Difference [%])	9.5	12	26	3.0

By inspection of the relative standard deviation data reported in Table E-3 for the Pre-Retrofit Study, it may be deduced that the repeatability of these results is very high. This is also true for the Baseline Study results obtained at the north exhaust face, thus the data from the two test series collected at the north exhaust face are representative and therefore comparable. However, the Baseline Study south face data indicates poor repeatability, thus a comparative analysis of the Baseline and Pre-Retrofit Study data sets may not provide a particularly reliable measure of variability.

As indicated in Table E-3, Booth 1 particulate stratification at the key sampling locations bracketing the partition height location has not changed significantly in the time since the Baseline Study was completed. In fact, the minor difference that is noted indicates that a higher particulate settling rate occurred during the Pre-Retrofit Study. Such an occurrence can serve only to enhance recirculation, rather than cause a concern.

Continuous Organic Concentration Measurements - The organic concentrations measured in the north and south exhaust stacks are a function of two independent variables: stack flow rate, and VOC release rate. Thus an accurate comparison of Baseline organic concentration data to results obtained from the Pre-Retrofit Study must consider both these parameters. The following procedure was employed to perform this comparison:

1) For each test, determine the bulk average exhaust VOC concentration (as ppm C) by reconciling the VOC levels measured in each stack with the stack flow rate data.

2) For each test, determine the total mass of VOC released by combining the coating and thinner usage data with the VOC content data for each of these materials

3) For each test, calculate the ratio of bulk average concentration to the total VOC released during the test to derive a parameter which compares the VOCs measured in the stacks to the VOCs released in the booth.

4) For the Baseline series, calculate the overall concentration/usage ratio by averaging each of the Baseline ratio values derived in Step 3. For the Pre-Retrofit series, calculate the overall concentration/usage ratio by averaging each of the Pre-Retrofit ratio values derived in Step 3.

5) Compare the Baseline results to the Pre-Retrofit results by calculating the Relative Percent Difference (RPD) between the Baseline and Pre-Retrofit average concentration/usage ratios derived in Step 4.

The results of this analysis are summarized in Table E-4, which indicates that the RPD between the Baseline Study results and the Pre-Retrofit Study results is 34.5%. Given that the Baseline Study mass balance closure results were on the order of 40%, this 34.5% variation between the Baseline and Pre-Retrofit studies is very reasonable.

Table E-4. Organic Monitoring Data Comparative Analysis Results

	Baseline Study				Pre-Retrofit Study			
Parameter	Test 1	Test 2	Test 3	Test 4	Test 1	Test 2	Test 3	Test 4
Cycle Duration (min)	73	76	66	53	63	34	53	45
North Stack								
Average [ ] (ppm C)	212	176	239	269	510	498	621	570
Peak [ ] (ppm C)	600	390	507	720	1,72	969	1,72	1,344
Flow Rate (acfm)	29,183	29,423	29,402	29,575	29,118	26,553	25,788	24,530
Coating Usage (lb) Thinner Usage (lb)	47.1 1.4	44.0 1.27	48.7 0.30	32.5 0.29	81.4 3.79	47.9 2.23	86.9 4.01	68.7 3.19
South Stack								
Average [ ] (ppm C)	113	194	120	232	180	261	327	402
Peak [ ] (ppm C)	300	510	345	609	918	657	786	873
Flow Rate (acfm)	29,182	30,167	27,827	28,787	28,392	25,869	25,664	26,526
Coating Usage (lb) Thinner Usage (lb)	30.6 0.90	33.1 .92	17.7 0.30	40.5 0.30	31.9 1.49	36.0 1.63	40.8 1.86	27.2 1.26
North + South Stack								
Bulk average [ ] (ppm C)	163	185	181	251	347	381	474	483
Coating Usage (lb) Thinner Usage (lb)	77.7 2.3	77.1 2.19	66.4 0.60	73.0 0.59	113.3 5.28	83.9 3.86	127.7 5.87	95.9 4.46
Total VOC released (lb)	28.64	28.32	23.11	25.33	43.68	32.3	49.18	36.96
Average [ ]/VOC ratio	5.69	6.53	7.83	9.91	7.94	11.80	9.64	13.07
Average [ ]/ Usage	7.49 with an RSD of 24.5%				10.61 with an RSD of 21.4%			
RPD: (Baseline vs. Pre-Retrofit Study)	34.5%							

Several interesting issues came to light during this analysis; of primary interest is that the coating usage rates in the Pre-Retrofit Study were much higher than in the Baseline Study, although the equipment that was painted did not differ significantly. Also, it was noted that the ratio of solvent to coating was significantly different: in the Baseline Study, the solvent/coating usage ratio ranged from 0.7 to 2.9 percent with the average being 1.9 percent. For the Pre-Retrofit Study, the solvent/coating usage was consistently 4.6 percent, which implies that the coating was "cut" with at least twice as much solvent during the Pre-Retrofit Study than during

the Baseline Study. This may be due in part to the fact that, while the same MIL-SPEC topcoats were used in both tests, MIL-C-53039A manufactured by Hentzen was used in the Baseline Study, and MIL-C-53039A manufactured by Pratt & Lambert was used during the Pre-Retrofit Study. However, the difference in total coating usage and thinner/coating ratio noted between the Baseline Study and the Pre-Retrofit Study could also be attributed to painter preference and/or skill.

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA-600/R-98-016b		

4. TITLE AND SUBTITLE Demonstration of a Paint Spray Booth Emission Control Strategy Using Recirculation/Partitioning and UV/Ozone Pollutant Emission Control, Volume 2. Appendices A - E

5. REPORT DATE February 1998

6. PERFORMING ORGANIZATION CODE

7. AUTHOR(S) Jacqueline Ayer (AQS) and David Proffitt (Acurex)

8. PERFORMING ORGANIZATION REPORT NO.

9. PERFORMING ORGANIZATION NAME AND ADDRESS

Air Quality Specialists
2280 University Drive
Newport Beach, CA
92660

Acurex Environmental Corp.
4915 Prospectus Dr., Suite F
Durham, NC
27713

10. PROGRAM ELEMENT NO.

11. CONTRACT/GRANT NO. 68-D4-0111

12. SPONSORING AGENCY NAME AND ADDRESS

EPA, Office of Research and Development
Air Pollution Prevention and Control Division
Research Triangle Park, NC 27711

13. TYPE OF REPORT AND PERIOD COVERED Final; 9/93 - 6/97

14. SPONSORING AGENCY CODE EPA/600/13

15. SUPPLEMENTARY NOTES APPCD project officer is Charles H. Darvin, Mail Drop 61, 919/541-7633. Volume 1 is the Technical Report.

16. ABSTRACT The report describes in detail the source testing, construction, and data reduction/analysis activities that comprise the three phases of a technology demonstration program. Phase I consisted of a detailed basline evaluation of several paint spray booths operated at the Barstow (California) Marine Corps Logistics Base to establish key operating parameters and air toxic emission profiles. This information was used to design a safe recirculation/flow partitioning system for the paint booths involved in the study to efficiently reduce the overall exhaust flow rate. Under Phase II, the necessary booth construction and retrofit modifications were made, and the air pollution control device was installed. The recirculation/flow partitioning system was tested extensively as part of the Phase III effort to ensure that the booths operated in accordance with health and safety standards mandated by the Occupational Safety and Health Administration (OSHA) and the National Fire Protection Association (NFPA).

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Pollution	Pollution Prevention	13B
Spray Painting	Stationary Sources	13H
Emission	Booths	14G
Circulation	Recirculation	
Ultraviolet Radiation	Flow Partitioning	20F
Ozone		07B

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES
Release to Public	Unclassified	296
	20. SECURITY CLASS *(This page)* Unclassified	22. PRICE

EPA Form 2220-1 (9-73)